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 four degree programs: Computer Science, Electrical Engineering, Telecommunications Engineering and Software Engineering. 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 Telecommunications Engineering program is interdisciplinary. Telecommunications Engineering requires a blend of knowledge from the areas of Electrical Engineering, Computer Science, and Economics/Policy. The Electrical Engineering, Telecommunications Engineering, Software Engineering and Computer Science 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 electrical and telecommunications 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 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.

Computer Science (B.S.) and Software Engineering (B.S.S.E)

Faculty


Associate Professors: Lawrence Chung, Galigekere R. Dattatreya, Yi Deng, Gopal Gupra, Ivor P. Page,
The Computer Science Department offers the B.S. degree in Computer Science and the B.S.S.E. degree in Software Engineering. Both are based on a solid foundation of mathematics, including calculus, linear algebra, and discrete mathematics. These programs of study are designed to offer students opportunities to prepare for an industrial, business, or governmental career in a rapidly changing profession and to prepare for graduate study in a field in which further education is strongly recommended. The two programs have the same basis in core computer science, including the analysis of algorithms and data structures, modern programming methodologies, and the study of operating systems. The Computer Science program continues with courses in advanced data structures, programming languages, telecommunications networks, and automata theory, while the Software Engineering program includes courses in requirements engineering, software validation and testing, and software architecture, culminating in a challenging project course in which students must demonstrate use of software engineering techniques. Both programs offer a rich choice of elective studies, including courses in artificial intelligence, computer graphics, databases, and compiler design.

The school offers a “fast track” B.S./M.S. option; see Fast Track Baccalaureate/Master’s Degree Program.

Bachelor of Science in Computer Science
Degree Requirements (121 hours)

I. Core Curriculum Requirements: 42 hours

A. Communication (6 hours)
   3 hours Communication (RHET 1302)
   3 hours Professional and Technical Communication (ECS 3390)\(^1\)
B. Social and Behavioral Sciences (15 hours)
   6 hours Government (GOVT 2301 and 2302)
   6 hours American History
   3 hours Social and Behavioral Science elective (ISSS 3360)
C. Humanities and Fine Arts (6 hours)
   3 hours Fine Arts (AP 1301)
   3 hours Humanities (HUMA 1301)
D. Mathematics and Quantitative Reasoning (6 hours)
   6 hours Calculus (MATH 2417 and 2419)\(^1\)
E. Science (9 hours)
   6 hours Lecture courses (PHYS 2325 and 2326)\(^4\)
   2 hours Laboratory courses (PHYS 2125 and 2126)\(^4\)
   4 hours Science Elective\(^4\)

\(^1\)Curriculum Requirements can be fulfilled by other approved courses from accredited institutions of higher education. The courses listed in parentheses are recommended as the most efficient way to satisfy both Core Curriculum and Major Requirements at U.T. Dallas.
II. Major Requirements: 58 hours

Major Preparatory Courses (22 hours beyond Core Curriculum)
- CS 1315 Computer Science I
- CS 2110 Introduction to Digital Systems Laboratory
- CS 2305 Discrete Mathematics for Computing I
- CS 2310 Introduction to Digital Systems
- CS 2315 Computer Science II
- MATH 2417 Calculus I\(^1\)
- MATH 2418 Linear Algebra
- MATH 2419 Calculus II\(^3\)
- PHYS 2125 Physics Laboratory I\(^2\)
- PHYS 2126 Physics Laboratory II\(^4\)
- PHYS 2325 Mechanics and Heat\(^5\)
- PHYS 2326 Electromagnetism and Waves\(^4\)
- 4 hours Science Elective\(^6\)

Major Core Courses (27 hours beyond Core Curriculum)
- CS 3305 Discrete Mathematics for Computing II
- CS/SE 3341 Probability and Statistics in Computer Science
- CS/SE 3345 Algorithm Analysis and Data Structures
- CS/SE 3354 Software Engineering
- CS 4337 Organization of Programming Languages
- CS/SE 4340 Computer Architecture
- CS/SE 4348 Operating Systems Concepts
- CS 4349 Advanced Data Structures and Algorithms
- CS 4384 Automata Theory
- ECS 3390 Professional and Technical Communication\(^2\)

Major Guided Electives (9 hours)
- CS guided electives are 4000 level CS courses approved by the student's CS advisor. The following courses may be used as guided electives without the explicit approval of an advisor:
  - CS 4334 Numerical Analysis
  - CS 4336 Advanced Java Programming
  - CS/SE 4347 Database Systems
  - CS 4361 Computer Graphics
  - CS 4365 Artificial Intelligence
  - CS/SE 4376 Object-Oriented Programming Systems
  - CS 4380 Senior Design Project
  - CS 4386 Compiler Design
  - CS/TE 4390 Computer Networks
  - CS/SE 4399 Senior Honors in Computer Science/Software Engineering
  - EE 4325 Introduction to VLSI Design
  - EE 4420 Microprocessor Systems Design
  - SE 4351 Requirements Engineering
  - SE 4352 Software Architecture and Design
  - SE 4367 Software Testing, Verification, Validation and Quality Assurance
  - SE 4385 Software Engineering Project

\(^2\) Hours fulfill the communication elective of the Core Curriculum.
III. Elective Requirements: 21 hours
Advanced Electives (6 hours)
All students are required to take at least six hours of advanced electives outside their major field of study. These must be either upper-division classes or lower-division classes that have prerequisites.
Free Electives (15 hours)
All students must accumulate at least 120 hours of university credit to graduate. Both lower- and upper-division courses may count as free electives but students must complete at least 51 hours of upper-division credit to qualify for graduation. Not all courses offered by the University can be used as a free elective. Please consult with your advisor.

Fast Track Baccalaureate/Master’s Degrees
In response to the need for post-baccalaureate education in the exciting field of computer science, a Fast Track program is available to exceptionally well-qualified students who choose their courses carefully. At the end of five years of successful study, it is possible to earn both the B.S. and the M.S. degrees in Computer Science. Being within 30 hours of graduation, a student admitted to the graduate program and accepted into the Fast Track program may, during the senior year, take 15 graduate hours that may be used to complete the baccalaureate degree and also to satisfy requirements for the master’s degree.
Interested students should see the Associate Dean of Undergraduate Education (ADU) for specific admission requirements to the Fast Track program.

Course of Study for Non-CS Majors
In recognition of the increased importance of Computer Science principles and skills in today’s technology-driven market place, U.T. Dallas offers a number of Computer Science courses that, with proper preparation, can be taken by non-CS majors. An appropriate selection of the following courses, taken in an order satisfying course prerequisites, can significantly enhance the professional skills of the non-CS major: CS 1315/1115, CS 2305, CS 2315, CS 3333/3133, CS 3335, CS 3336, CS 3341, CS 3354, CS 3375, and CS 4376.

Minors
The Erik Jonsson School of Engineering and Computer Science does not offer minors at this time.

Bachelor of Science in Software Engineering
Degree Requirements (120 hours)

I. Core Curriculum Requirements: 42 hours
A. Communication (6 hours)
   3 hours Communication (RHET 1302)
   3 hours Professional and Technical Communication (ECS 3390)
B. Social and Behavioral Sciences (15 hours)
   6 hours Government (GOVT 2301 and 2302)
   6 hours American History
School of Engineering and Computer Science

3 hours Social and Behavioral Science Elective (ISSS 3360)

C. Humanities and Fine Arts (6 hours)
  3 hours Fine Arts (AP 1301)
  3 hours Humanities (HUMA 1301)

D. Mathematics and Quantitative Reasoning (6 hours)
  6 hours Calculus (MATH 2417 and 2419)

E. Science (9 hours)
  6 hours Lecture courses (PHYS 2325 and 2326)
  2 hours Laboratory courses (PHYS 2125 and 2126)
  4 hours Science Elective

Curriculum Requirements can be fulfilled by other approved courses from accredited institutions of higher education. The courses listed in parentheses are recommended as the most efficient way to satisfy both Core Curriculum and Major Requirements at U.T. Dallas.

II. Major Requirements: 57 hours

Major Preparatory Courses (21 hours beyond Core Curriculum)
  CS 1315 Computer Science I
  CS 2305 Discrete Mathematics for Computing I
  CS 2315 Computer Science II
  MATH 2417 Calculus I
  MATH 2418 Linear Algebra
  MATH 2419 Calculus II
  PHYS 2125 Physics Laboratory I
  PHYS 2126 Physics Laboratory II
  PHYS 2325 Mechanics and Heat
  PHYS 2326 Electromagnetism and Waves

Major Core Courses (27 hours beyond Core Curriculum)
  CS/SE 3341 Probability and Statistics in Computer Science
  CS/SE 3345 Algorithm Analysis and Data Structures
  CS/SE 3354 Software Engineering
  CS/SE 4340 Computer Architecture
  CS/SE 4348 Operating Systems Concepts
  ECS 3390 Professional and Technical Communication
  SE 4351 Requirements Engineering
  SE 4352 Software Architecture and Design
  SE 4367 Software Testing, Verification, Validation and Quality Assurance
  SE 4385 Software Engineering Project

Major Guided Electives (9 hours)
  CS guided electives are 4000 level CS courses approved by the student's CS advisor. The following courses may be used as guided electives without the explicit approval of an advisor:
  CS 4334 Numerical Analysis
  CS 4336 Advanced Java Programming
  CS 4337 Organization of Programming Languages
  CS/SE 4347 Database Systems
  CS 4361 Computer Graphics
  CS 4365 Artificial Intelligence
CS/SE 4376 Object Oriented Programming Systems
CS 4384 Automata Theory
CS 4386 Compiler Design
CS 4390 Computer Networks
CS/SE 4399 Senior Honors in Computer Science/Software Engineering
EE 4325 Introduction to VLSI Design
EE 4420 Microprocessor Systems Design

2 Hours fulfill the communication elective of the Core Curriculum.
3 Six hours of Calculus are counted under Mathematics Core, and two hours of Calculus are counted as Major Preparatory Courses.
4 Nine hours of Science are counted under Science Core. Three hours are counted as Major Preparatory Courses.

III. Elective Requirements: 21 hours

Advanced Electives (6 hours)
All students are required to take at least six hours of advanced electives outside their major field of study. These must be either upper-division classes or lower-division classes that have prerequisites.

Free Electives (15 hours)
All students must accumulate at least 120 hours of university credit to graduate. Both lower- and upper-division courses may count as free electives but students must complete at least 51 hours of upper-division credit to qualify for graduation. Not all courses offered by the University can be used as a free elective. Please consult with your advisor.

Fast Track Baccalaureate/Master’s Degrees
In response to the need for advanced education in electrical engineering, a Fast Track program is available to exceptionally well-qualified U.T. Dallas undergraduate students who meet the requirements for admission to the graduate school. The Fast Track program is designed to accelerate a student’s B.S.T.E. and an M.S.T.E. Master.

3 + 2 Programs
The University of Texas at Dallas offers “3 + 2” programs with Abilene Christian University, Austin College, Paul Quinn College, and Texas Woman’s University. These programs combine the strengths of these respective institutions with those of The University of Texas at Dallas, and permit students to earn two undergraduate degrees simultaneously while preparing for a professional career in engineering. Full-time undergraduate students attend one of the institutions listed above, majoring in mathematics, physics, or computer science for three years, and then continue their education for two years at The University of Texas at Dallas, majoring in electrical engineering. After completion of the program, students receive the Bachelor of Science degree in their chosen major from one of the above institutions and the B.S.E.E. degree from U.T. Dallas. Further details of the individual programs and persons to contact at the respective institutions can be obtained from the U.T. Dallas Electrical Engineering Program Office.

Minors
The Erik Jonsson School of Engineering and Computer Science does not offer minors at this time.
Electrical Engineering (B.S.E.E. and B.S.T.E.)

Faculty


Associate Professors: Dinesh Bhatia, Gerald O. Burnham, Dale M. Byrne, Andrea F. Fumagalli, Matthew Goeckner, Philipos C. Loizou

Assistant Professors: Adele B. Doser, Jeong-Bong Lee, Jin Liu, Aria Nostratinia, Mehrdad Nourani, Kamlesh Rath, Murat Torlak, Mohammad Saquib, Samuel Villareal

Senior Lecturers: Nathan Dodge, R. Stephen Gibbs

The Electrical Engineering Department offers two engineering programs: Electrical Engineering and Telecommunications Engineering. 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 Electrical Engineering program offers students a solid educational foundation in the areas of electrical networks, electronics, electromagnetics, computers, digital systems, and communications and is accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology (ABET). Mastery of these areas provides students with the ability to adapt and maintain leadership roles in their post-baccalaureate pursuits through the application of fundamental principles to a rapidly changing and growing discipline.

Students in the Electrical Engineering program take either the general program or specialize in microelectronics or telecommunications, and can take advanced courses in computer hardware and software; the analysis and design of analog and digital communication systems; analog and digital signal processing; the analysis, design, and fabrication of microelectronic components and systems; and guided and unguided wave propagation. A broad choice of electives (within and external to electrical engineering) allows students to broaden their education as well as develop expertise in areas of particular interest. In keeping with the role of a professional, students are expected to develop communication skills and an awareness of the relationship between technology and society.

The Telecommunications Engineering program is interdisciplinary. Telecommunications Engineering requires a blend of knowledge from the areas of Electrical Engineering, Computer Science, and Economics/Policy.

The Electrical and Telecommunications Engineering 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 electrical and telecommunications engineering. These programs ensure that the design experience, which includes both analytical and experimental studies, is integrated throughout the curriculum in a sequential development leading to advanced work. Design problems are frequently assigned in both lecture and laboratory courses. Each student is required to complete a major design project during the senior year. In addition, established cooperative education programs with area industry further supplement design experiences.
High School Preparation

Engineering education requires a strong high school preparation. Pre-engineering students should have high school preparation of at least one-half year in trigonometry and at least one year each in elementary algebra, intermediate and advanced algebra, plane geometry, chemistry, and physics, thus developing their competencies to the highest possible levels and preparing to move immediately into demanding college courses in calculus, calculus-based physics, and chemistry for science majors. It is also essential that pre-engineering students have the competence to read rapidly and with comprehension, and to write clearly and correctly.

Lower-Division Study

All lower-division students in either Electrical Engineering or Telecommunications Engineering concentrate on mathematics, science and introductory engineering courses, building competence in these cornerstone areas for future application in upper-division engineering courses. The following requirements apply both to students seeking to transfer to U.T. Dallas from other institutions as well as to those currently enrolled at U.T. Dallas, whether in another school or in the Erik Jonsson School of Engineering and Computer Science.

ABET Requirements

All engineering degree plans must satisfy the requirements specified by the Accreditation Board for Engineering and Technology (ABET). The course work must include at least:

1) One year (32 SCH) of an appropriate combination of mathematics and basic sciences,
2) One-half year (16 SCH) of humanities and social sciences,
3) One and one-half years (48 SCH) of engineering topics.

Although the electrical engineering and telecommunications engineering curricula that follow have been designed to meet these criteria, students have the responsibility, in consultation with an advisor, to monitor their own choice of courses carefully to be certain that all academic requirements for graduation are being satisfied. Students are strongly encouraged to take courses in such subjects as accounting, industrial management, finance, personnel administration, and engineering economy.

Bachelor of Science in Electrical Engineering

Degree Requirements (128 hours)

I. Core Curriculum Requirements: 42 hours

A. Communication (6 hours)
   3 hours Communication (RHET 1302)
   3 hours Professional and Technical Communication (ECS 3390)
B. Social and Behavioral Sciences (15 hours)
   6 hours Government (GOVT 2301 and 2302)
   6 hours American History
   3 hours Social and Behavioral Science elective (ISSS 3360)
C. Humanities and Fine Arts (6 hours)
   3 hours Fine Arts (AP 1301)
   3 hours Humanities (HUMA 1301)
D. Mathematics and Quantitative Reasoning (6 hours)
   6 hours Calculus (MATH 2417 and 2419)
E. Science (9 hours)
   8 hours Physics (PHYS 2325, 2125, 2326 and 2126)
II. Major Requirements: 74 hours

Major Preparatory Courses (20 hours beyond Core Curriculum)
- CHEM 1111 General Chemistry Laboratory
- CHEM 1311 General Chemistry
- CS 1315 Computer Science I
- EE 1102 Introduction to Experimental Techniques
- EE 2110 Introduction to Digital Systems Laboratory
- EE 2300 Applied Linear Algebra
- EE 2310 Introduction to Digital Systems
- MATH 2417 Calculus I
- MATH 2419 Calculus II
- MATH 2420 Differential Equations with Applications
- PHYS 2125 Physics Laboratory I
- PHYS 2126 Physics Laboratory II
- PHYS 2325 Mechanics and Heat
- PHYS 2326 Electromagnetism and Waves

Major Core Courses (45 hours beyond Core Curriculum)
- ECS 3390 Professional and Technical Communication
- EE/TE 3101 Electrical Network Analysis Laboratory
- EE/TE 3102 Signals and Systems Laboratory
- EE 3110 Electronic Devices Laboratory
- EE 3111 Electronic Circuits Laboratory
- EE 3120 Digital Circuits Laboratory
- EE 3150 Communications Systems Laboratory
- EE 3300 Advanced Engineering Mathematics
- EE/TE 3301 Electrical Network Analysis
- EE/TE 3302 Signals and Systems
- EE 3310 Electronic Devices
- EE 3311 Electronic Circuits
- EE 3320 Digital Circuits
- EE/TE 3341 Probability Theory and Statistics
- EE 3350 Communications Systems
- EE 4301 Electromagnetic Engineering I
- EE 4310 Systems and Controls
- EE 4368 RF Circuit Design Principles
- EE 438X Senior Design Project I
- EE 438X Senior Design Project II
- ISSS 3360 Politics, Values-Business and Technology

Major Guided Electives (9 hours)
Students pursuing the general program take 9 semester hours from either list below.
Students pursuing a concentration in Microelectronics take 3 of the following courses:

- EE 4304 Computer Architecture
- EE 4325 Introduction to VLSI Design
- EE 4330 Integrated Circuit Technology
- EE 4340 Analog Integrated Circuit Analysis and Design
- EE 4341 Digital Integrated Circuit Analysis and Design
- EE/TE 4382 Individually Supervised Design Project (Microelectronics)

Students pursuing a concentration in Telecommunications take 3 of the following courses:

- EE 4360 Digital Communications
- EE 4361 Introduction to Digital Signal Processing
- EE/TE 4365 Introduction to Wireless Communication
- EE/TE 4367 Telecommunications Switching and Transmission
- EE 4390 Introduction to Telecommunication Networks

2 Six hours of Calculus are counted under Mathematics Core, and two hours of Calculus are counted as Major Preparatory Courses.
3 One hour of Chemistry is counted under Science core, and three hours are counted as Major Preparatory Courses.
4 Students must pass each of the EE, CS, Math and Science courses listed in this degree plan and each of their prerequisites, with a grade of C- or better.
5 Hours fulfill the communication component of the Core Curriculum
6 Hours fulfill the Social and Behavioral Sciences component of the Core Curriculum

III. Elective Requirements: 12 hours

Advanced Electives (6 hours)
- All students are required to take at least six hours of advanced electives outside their major field of study. These must be either upper-division classes or lower-division classes that have prerequisites.

Free Electives (6 hours)
- Both lower- and upper-division courses may count as free electives but students must complete at least 51 hours of upper-division credit to qualify for graduation. Not all courses offered by the University can be used as a free elective. Please consult with your advisor.

Fast Track Baccalaureate/Master’s Degrees

In response to the need for advanced education in electrical engineering, a Fast Track program is available to exceptionally well-qualified U.T. Dallas undergraduate students who meet the requirements for admission to the graduate school. The Fast Track program is designed to accelerate a student’s education so that both a B.S.E.E. and an M.S.E.E. degree can be earned in five years of full-time study. This is accomplished by (1) taking courses (typically electives) during one or more summer semesters, and (2) beginning graduate course work during the senior year. Details of the requirements for admission to this program are available from the Associate Dean’s office.

3 + 2 Programs

The University of Texas at Dallas offers “3 + 2” programs with Abilene Christian University, Austin College, Paul Quinn College, and Texas Woman’s University. These programs combine the strengths of these respective institutions with those of The University of Texas at Dallas and permit students to earn two undergraduate degrees simultaneously while preparing for a professional career in engineering. Full-time
undergraduate students attend one of the institutions listed above, majoring in mathematics, physics, or computer science for three years, and then continue their education for two years at The University of Texas at Dallas, majoring in electrical engineering. After completion of the program, students receive the Bachelor of Science degree in their chosen major from one of the above institutions and the B.S.E.E. degree from U.T. Dallas. Further details of the individual programs and persons to contact at the respective institutions can be obtained from the U.T. Dallas Electrical Engineering Program Office.

**Minors**

The Erik Jonsson School of Engineering and Computer Science does not offer minors at this time.

**Bachelor of Science in Telecommunications Engineering**

**Degree Requirements (125 hours)**

I. **Core Curriculum Requirements**: 42 hours

A. Communication (6 hours)
   - 3 hours Communication (RHET 1302)
   - 3 hours Professional and Technical Communication (ECS 3390)²

B. Social and Behavioral Sciences (15 hours)
   - 6 hours Government (GOVT 2301 and 2302)
   - 6 hours American History
   - 3 hours Social and Behavioral Science elective (ISSS 3360)

C. Humanities and Fine Arts (6 hours)
   - 3 hours Fine Arts (AP 1301)
   - 3 hours Humanities (HUMA 1301)

D. Mathematics and Quantitative Reasoning (6 hours)
   - 6 hours Calculus (MATH 2417 and 2419)²

E. Science (9 hours)
   - 8 hours Physics (PHYS 2325, 2125, 2326 and 2126)²
   - 4 hours Chemistry (CHEM 1311 and 1111)²

¹ Curriculum Requirements can be fulfilled by other approved courses from accredited institutions of higher education. The courses listed in parentheses are recommended as the most efficient way to satisfy both Core Curriculum and Major Requirements at U.T. Dallas.

II. **Major Requirements**: 71 hours³

**Major Preparatory Courses (20 hours beyond Core Curriculum)**

- CHEM 1111 General Chemistry Laboratory I³
- CHEM 1311 General Chemistry I³
- CS 1315 Computer Science I
- CS 2315 Computer Science II
- EE 1102 Introduction to Experimental Techniques
- EE 2110 Introduction to Digital Systems Laboratory
- EE 2310 Introduction to Digital Systems
- MATH 2417 Calculus I²
- MATH 2419 Calculus II²
- MATH 2420 Differential Equations With Applications
- PHYS 2125 Physics Laboratory I³
PHYS 2126 Physics Laboratory II
PHYS 2325 Mechanics and Heat
PHYS 2326 Electromagnetism and Waves

**Major Core Courses (51 hours beyond Core Curriculum)**

- CS 4340 Computer Architecture
- CS/TE 4348 Operating Systems Concepts
- CS/TE 4390 Computer Networks
- ECS 3390 Professional and Technical Communication
- EE/TE 3101 Electrical Network Analysis Laboratory
- EE/TE 3102 Signals and Systems Laboratory
- EE 3150 Communications Systems Laboratory
- EE 3300 Advanced Engineering Mathematics
- EE/TE 3301 Electrical Network Analysis
- EE/TE 3302 Signals and Systems
- EE/TE 3341 Probability Theory and Statistics
- EE 3350 Communications Systems
- EE 4360 Digital Communications
- EE 4361 Introduction to Digital Signal Processing
- EE/TE 4365 Introduction to Wireless Communication
- EE/TE 4367 Telecommunications Switching and Transmission
- TE 3307 Discrete Mathematics
- TE 3346 Computer Algorithm Analysis and Data Structures
- TE 438X Senior Design Project I
- TE 438X Senior Design Project II
- ISSS 3360 Politics and Values in Business and Technology

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2 Six hours of Calculus are counted under Mathematics Core above, and two hours of Calculus are counted as Major Preparatory Courses.
3 Nine hours of science are counted under Science Core. Three hours are counted under Major Preparatory Courses.
4 Students must have passed each of the CS, Math, Science, EE and TE courses listed above, and each of their prerequisites, with a grade of C- or better.
5 Hours fulfill the communication component requirement of the Core Curriculum

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### III. Elective Requirements: 12 hours

#### Advanced Electives (6 hours)

All students are required to take at least six hours of advanced electives outside their major field of study. These must be either upper-division classes or lower-division classes that have prerequisites.

#### Free Electives (6 hours)

Both lower-and upper division courses may count as free electives, but students must complete at least 51 hours of upper-division credit to qualify for graduation. Not all courses offered by the University can be used as a free elective. Please consult with your advisor.

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### Fast Track Baccalaureate/Master’s Degrees

In response to the need for advanced education in electrical engineering, a Fast Track program is available to exceptionally well-qualified U.T. Dallas undergraduate students who meet the requirements for admission to the graduate school. The Fast Track program is designed to accelerate a student’s education so that both a B.S.E.E. and an M.S.E.E. degree can be earned in five years of full-time study. This is accomplished by (1) taking courses (typically electives) during one or more summer semesters, and (2) beginning
graduate course work during the senior year. Details of the requirements for admission to this program are available from the Associate Dean’s Office.

**Minors**

The Erik Jonsson School of Engineering and Computer Science does not offer minors at this time.