

BACHELOR OF SCIENCE (B.S.) MAJOR IN ELECTRICAL ENGINEERING (COMPUTER ENGINEERING CONCENTRATION)

**Minimum required: 130
semester credit hours**

Admission Requirements

1. The Bachelor of Science (B.S.) degree with a major in Electrical Engineering requires admission to the university and admission to the program. Information about the program admissions can be found at: <http://mycatalog.txstate.edu/undergraduate/science-engineering/ingram-school/#admissionstext>
2. In order to declare Electrical Engineering as a major, students must meet one of the following prerequisites:
3. ACT Math score of 24 or higher,
4. SAT Math score of 550 (re-centered) or higher, or
5. credit for one of the following Math courses with a grade of "C" or higher.

Code	Title	Hours
MATH 1315	College Algebra	3
MATH 1317	Plane Trigonometry	3
MATH 1319	Mathematics for Business and Economics I	3
MATH 1329	Mathematics for Business and Economics II	3

3. Students who do not meet the above prerequisites may choose Pre-Electrical Engineering as their major. Pre-Electrical Engineering students who complete one of the following Math courses with a grade of "C" or higher may declare Electrical Engineering as their major:

Code	Title	Hours
MATH 1315	College Algebra	3
MATH 1317	Plane Trigonometry	3
MATH 1319	Mathematics for Business and Economics I	3
MATH 1329	Mathematics for Business and Economics II	3

General Requirements

1. The general education core curriculum courses are listed in the degree plan below along with the statewide component code number. See the General Education Core Curriculum (<http://mycatalog.txstate.edu/undergraduate/general-education-core-curriculum/>) section of this catalog for the Texas State requirements and options in the core curriculum, including Honors courses.
2. For transfer students, 30-31 semester credit hours may be transferred from a Texas public institution of higher education for the Electrical Engineering Field of Study and be applied to the Bachelor of Science degree with a major in Electrical Engineering at Texas State University. More information about the Field of Study (<http://mycatalog.txstate.edu/undergraduate/general-information/academic-policies/texas-legislative-requirements/>) is available in the

Academic Policies section of this catalog. The transferable Texas Common Course Number (TCCN) is listed below the Texas State University course number in the following course list.

Code	Title	Hours
MATH 2471	Calculus I	4
TCCN: MATH 2413		
MATH 2472	Calculus II	4
TCCN: MATH 2414		
MATH 2393	Calculus III	3
TCCN: MATH 2315		
MATH 3323	Differential Equations	3
TCCN: MATH 2320		
PHYS 1430	Mechanics	4
TCCN: PHYS 2425 or 2325/2125		
PHYS 2425	Electricity and Magnetism	4
TCCN: PHYS 2426 or 2326/2126		
CS 1428	Foundations of Computer Science I	4
TCCN: COSC 1420 or 1320		
EE 2400	Circuits I	4
TCCN: ENGR 2405 or 2305/2105		
Total Hours		30

3. Students must complete a minimum of 36 advanced hours (3000 or 4000 level courses).
4. Nine semester credit hours must be writing intensive (WI).
5. All students in the Electrical Engineering degree programs must complete Electrical Engineering (EE) course prerequisites with a grade of "C" or higher.
6. If two years of the same language are taken in high school, then no additional language hours will be required for the degree. In the absence of such high school language, two semesters of the same modern language must be taken at the college level.
7. The Electrical Engineering degree programs include all the courses required for an Applied Mathematics minor.

Course Requirements

		Freshman	
		First Semester Hours	Second Semester Hours
CHEM 1335 (TCCN CHEM 1309 or 1409)	3	PHYS 1430 (Life and Physical Sciences Component Code 030 [TCCN PHYS 2425])	4
CHEM 1135 (TCCN CHEM 1109 [taken with TCCN 1309])	1	CS 2308 (TCCN COSC 2336)	3
CS 1428 (TCCN COSC 1420 or 1320)	4	MATH 2472 (Component Area Option Code 090/092 [TCCN MATH 2414])	4
MATH 2471 (Mathematics Component Code 020 [TCCN MATH 2413])	4	ENG 1320 (Communication Component Code 010 [TCCN ENGL 1302])	3
US 1100	1	EE 2420	4

ENG 1310 (Communication Component Code 010 [TCCN ENGL 1301])	3		
	16		18
		Sophomore	
	First Semester Hours	Second Semester Hours	
MATH 2358 (TCCN MATH 2305)	3	EE 3420	4
EE 2400	4	PHIL 1305 or 1320 (Language, Philosophy, and Culture Component Code 040)	3
PHYS 2425 (Life and Physical Sciences Component Code 030 and Component Area Option Code 090/093 [TCCN PHYS 2426])	4	EE 3400	4
MATH 3323	3	MATH 2393	3
		CS 3358	3
	14		17
		Junior	
	First Semester Hours	Second Semester Hours	
American History Component Code 060	3	American History Component Code 060	3
ECO 2301 or 2314 (Social and Behavioral Sciences Component Code 080 [TCCN ECON 1301 or 2302])	3	POSI 2310 (Government/ Political Science Component Code 070 [TCCN GOVT 2306])	3
EE 3350	3	EE 3370	3
CS 3339	3	EE 4352	3
MATH 3377	3	IE 3320	3
		CS 4328	3
	15		18
		Senior	
	First Semester Hours	Second Semester Hours	
EE 4350	3	ART 2313, DAN 2313, MU 2313, or TH 2313 (Creative Arts Component Code 050 [TCCN HUMA 1315])	3
POSI 2320 (Government/ Political Science Component Code 070 [TCCN GOVT 2305])	3	EE 4391	3
CS 3354	3	EE Electives ¹	8
EE 4372 or CS 4310	3		
EE 4377	3		
EE 4390	3		
	18		14

Total Hours: 130

Advanced Electrical Engineering Electives

Code	Title	Hours
CS 3398	Software Engineering	3
CS 4332	Introduction to Database Systems	3
CS 4388	Computer Graphics	3
EE 3326	Numerical and Scientific Data Analysis Using Python	3
EE 4321	Digital Systems Design Using HDL	3
EE 4323	Digital Image Processing	3
EE 4331	Introduction to Machine Learning for Engineering Applications	3
EE 4332	Introduction to Computer-Aided Engineering Simulation on HPC Systems	3
EE 4351	Fundamentals of Electroceramics	3
EE 4353	Fundamentals of Advanced Semiconductor Technology	3
EE 4354	Flexible Electronics	3
EE 4356	Power Electronics	3
EE 4358	Introduction to Microelectromechanical Systems	3
EE 4360	Linear Control Systems	3
EE 4375	Building a Smart Grid Architecture	3
ENGR 3190	Cooperative Education (may be taken for a maximum of 3 hours)	1
ENGR 4395	Independent Studies in Engineering	3

¹ A minimum of eight (8) hours of advanced Electrical Engineering electives chosen from the list below are required.