

## Minimum required: 120 semester credit hours

### 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. In addition to satisfying the University graduation requirements, students must earn a grade of C or higher in all computer science, computer engineering concentration, and mathematics courses used to satisfy the requirements of the computer science major.
3. For transfer students, 26-32 semester credit hours in computer science (or their equivalents) may be transferred from a Texas public institution of higher education for the Computer Science Field of Study and be applied to the Bachelor of Science degree with a major in Computer Science 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. If transferring additional computer science courses please contact the Department of Computer Science for assistance. The transferable Texas Common Course Number (TCCN) is listed below the Texas State University course number in the following course list.

Code	Title	Hours
CS 1319	Fundamentals of Computer Science	3
TCCN: COSC 1336 or 1436 (CS 1319 + 1 hour CS ELNA)		
CS 1428	Foundations of Computer Science I	4
TCCN: COSC 1337 or 1437		
CS 2308	Foundations of Computer Science II	3
TCCN: COSC 2336 or 2436 (CS 2308 + 1 hour CS ELNA)		
CS 2318	Assembly Language	3
TCCN: COSC 2325 or 2425 (CS 2318 + 1 hour CS ELNA)		
MATH 2471	Calculus I	4
TCCN: MATH 2313 or 2413		
MATH 2472	Calculus II	4
TCCN: MATH 2314 or 2414		
PHYS 1430	Mechanics	4
TCCN: PHYS 2425		
PHYS 2425	Electricity and Magnetism	4
TCCN: PHYS 2426		
Total		26-32

4. Students pursuing this B.S. degree program are required to complete 3 hours of technical or scientific writing. A grade of C or higher is required in these hours to satisfy the graduation requirements of the computer science major. Students may select from ENG 3303 or ENG 3313.
5. Nine hours of writing intensive (WI) courses are required for graduation.
6. Students must complete a minimum of 36 advanced hours (3000 or 4000 level courses).

7. The required courses for this major include 14 of the 20 hours of coursework required for a Mathematics or Applied Mathematics minor. Therefore, this degree plan includes two additional courses needed to complete one of these minors.
8. 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 language taken in high school, then two semesters of the same modern language (1410 and 1420) must be taken at the college level, and the requirements will be added to the student's degree audit.
9. The number of free electives a student will complete varies, depending on the number of hours needed to satisfy the 120 and/or the 36 advanced or 9 hours writing intensive requirements. Students should consult with the academic advisor before enrolling in any free elective courses to ensure that electives are needed.
10. Students entering Texas State with fewer than 16 credit hours completed after high school graduation will be required to take US 1100. All others will be exempt from taking this course. Students may be required to earn an additional elective to reach the 120 minimum total credit hour requirement for the awarding of a degree.
11. Students with the Computer Engineering (CE) concentration must complete one CS project course from: CS 4318 or CS 4380. This course cannot also be used to satisfy the CE concentration elective.
12. The concentration in Computer Engineering consists of the following courses:

Code	Title	Hours
EE 2400	Circuits I	4
EE 2420	Digital Logic	4
Choose 2 courses from the following:		6
CS 4310	Computer Networks	3
CS 4318	Compiler Construction	3
CS 4328	Operating Systems	3
CS 4337	Introduction to Computer Vision	3
CS 4347	Introduction to Machine Learning	3
CS 4350	Unix Systems Programming	3
CS 4380	Parallel Programming	3
CS 4388	Computer Graphics	3
EE 3326	Numerical and Scientific Data Analysis Using Python	3
EE 3400	Circuits II	4
EE 4331	Introduction to Machine Learning for Engineering Applications	3
EE 4332	Introduction to Computer-Aided Engineering Simulation on HPC Systems	3
CS 4347 and EE4331 cannot both be applied to the concentration.		

### Course Requirements

		Freshman	
		First Semester Hours	Second Semester Hours
CS 1428		4	CS 2308 3
MATH 2471 (Mathematics Component Code 020)		4	MATH 2472 (Component Area Option Code 090/092) 4

US 1100	1 PHIL 1305 or 1320 (Language, Philosophy, and Culture Component Code 040)	3
ENG 1310, 1320, or 1321 (Communication Component Code 010)	3 MATH 2358	3
COMM 1310 (Component Area Option Code 090/091)	3 POSI 2310 (Government/ Political Science Component Code 070 [TCCN GOVT 2306])	3
<b>15</b>		<b>16</b>
		<b>Sophomore</b>
<b>First Semester Hours</b>	<b>Second Semester Hours</b>	
CS 2318	3 CS 2315	3
CS 3358	3 CS 3354	3
EE 2420	4 MATH 3398	3
Life and Physical Sciences Component Code 030 <sup>1</sup>	4 Life and Physical Sciences Component Code 030 <sup>1</sup>	4
	POSI 2320 (Government/ Political Science Component Code 070 [TCCN GOVT 2305])	3
<b>14</b>		<b>16</b>
		<b>Junior</b>
<b>First Semester Hours</b>	<b>Second Semester Hours</b>	
CS 3339	3 CS 3360	3
EE 2400	4 CS 3398	3
ENG 3303 (Communication Component Code 010) <sup>2</sup>	3 MATH 3305	3
Life and Physical Sciences <sup>1</sup>	4 American History Component Code 060	3
	Computer Engineering Concentration Elective	3
<b>14</b>		<b>15</b>
		<b>Senior</b>
<b>First Semester Hours</b>	<b>Second Semester Hours</b>	
CS 4371	3 Select one of the following:	3
Math/Applied Math Minor	3 CS 4318	
American History Component Code 060	3 CS 4380	
Creative Arts Component Code 050 [HUMA 1315]	3 Math/Applied Math Minor	3
Computer Engineering Concentration Elective	3 Social and Behavioral Sciences Component Code 080	3
	Electives	6
<b>15</b>		<b>15</b>

**Total Hours: 120**

PHYS) as listed above. Field of Study requirements of PHYS 1430 and PHYS 2425 will be used to satisfy this requirement.

<sup>2</sup> Students may take ENG 3313 instead of ENG 3303. If students take ENG 3313, they will need to complete an additional CORE 010 course.

## Computer Engineering Concentration Elective Options

Code	Title	Hours
Choose two courses from the following:		
CS 4310	Computer Networks	3
CS 4318	Compiler Construction	3
CS 4328	Operating Systems	3
CS 4337	Introduction to Computer Vision	3
CS 4347	Introduction to Machine Learning	3
CS 4350	Unix Systems Programming	3
CS 4380	Parallel Programming	3
CS 4388	Computer Graphics	3
EE 3326	Numerical and Scientific Data Analysis Using Python	3
EE 3400	Circuits II	4
EE 4331	Introduction to Machine Learning for Engineering Applications	3
EE 4332	Introduction to Computer-Aided Engineering Simulation on HPC Systems	3

<sup>1</sup> Life & Physical Sciences must be chosen from: BIO 1330/BIO 1130 & BIO 1331/BIO 1131; PHYS 1315/PHYS 1115 & PHYS 1325/PHYS 1125 [or PHYS 1430 & PHYS 2425]; CHEM 1341/CHEM 1141 and CHEM 1342/CHEM 1142; or GEOL 1410 & GEOL 1420. Eight hours (2 courses) must be from the same science (BIO, CHEM, GEOL, or