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

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 two-year college as agreed by Texas public institutions for the
Computer Science Field of Study and be applied to the B.S. major
in Computer Science. 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.

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

Total: 26-32

4. Students pursuing this B.S. degree program are required to complete
an additional 3 hours of English beyond the general education core
curriculum. A grade of C or higher is required in these additional
hours to satisfy the graduation requirements of the computer
science major. Students may select from the following English
courses. ENG 3303 or ENG 3313 is recommended.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENG 2310</td>
<td>British Literature before 1785</td>
<td>3</td>
</tr>
<tr>
<td>ENG 2320</td>
<td>British Literature since 1785</td>
<td>3</td>
</tr>
<tr>
<td>ENG 2330</td>
<td>World Literature before 1600</td>
<td>3</td>
</tr>
<tr>
<td>ENG 2340</td>
<td>World Literature since 1600</td>
<td>3</td>
</tr>
<tr>
<td>ENG 2359</td>
<td>US Literature before 1865</td>
<td>3</td>
</tr>
<tr>
<td>ENG 2360</td>
<td>US Literature since 1865</td>
<td>3</td>
</tr>
<tr>
<td>ENG 3303</td>
<td>Technical Writing</td>
<td>3</td>
</tr>
<tr>
<td>ENG 3313</td>
<td>Scientific Writing</td>
<td>3</td>
</tr>
</tbody>
</table>

5. Nine hours of writing intensive (WI) courses are required for
graduation.

6. Majors must complete a minimum of 36 advanced hours (3000 or
4000 level courses).

7. Students pursuing this B.S. degree program are
required to complete a total of 17 hours in mathematics
from MATH 2471, MATH 2472, MATH 3305, MATH 2358, MATH 3398. Therefore,
the requirements of a Mathematics or Applied Mathematics minor are
included in this degree plan.

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. Computer Science majors with the Computer Engineering (CE)
concentration must complete one CS project course from: CS 4318,
CS 4326, CS 4371, CS 4380, or CS 4398. Cannot be the same
computer science course completed to satisfy the CE concentration
elective.

11. The concentration in Computer Engineering consists of the following
courses:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 3369</td>
<td>Embedded Computer Systems</td>
<td>3</td>
</tr>
<tr>
<td>EE 2400</td>
<td>Circuits I</td>
<td>4</td>
</tr>
<tr>
<td>EE 2420</td>
<td>Digital Logic</td>
<td>4</td>
</tr>
<tr>
<td>Select one of the following:</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>CS 4310</td>
<td>Computer Networks</td>
<td>3</td>
</tr>
<tr>
<td>CS 4318</td>
<td>Compiler Construction</td>
<td>3</td>
</tr>
<tr>
<td>CS 4380</td>
<td>Parallel Programming</td>
<td>3</td>
</tr>
<tr>
<td>CS 4388</td>
<td>Computer Graphics</td>
<td>3</td>
</tr>
</tbody>
</table>

Course Requirements

<table>
<thead>
<tr>
<th>Freshman</th>
<th>First Semester</th>
<th>Second Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 1428</td>
<td>4 CS 2308</td>
<td>3</td>
</tr>
<tr>
<td>MATH 2471</td>
<td>(Mathematics</td>
<td>4 MATH 2472</td>
</tr>
<tr>
<td>Component Code 020)</td>
<td>4</td>
<td>4</td>
</tr>
</tbody>
</table>
Bachelor of Science (B.S.) Major in Computer Science (Computer Engineering Concentration)

<table>
<thead>
<tr>
<th>US 1100</th>
<th>ENG 1320 (Communication Component Code 010)</th>
<th>3</th>
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</thead>
<tbody>
<tr>
<td>ENG 1310 (Communication Component Code 010)</td>
<td>3 PHIL 1305 or 1320 (Language, Philosophy &amp; Culture Component Code 040)</td>
<td>3</td>
</tr>
<tr>
<td>COMM 1310 (Component Area Option Code 090/091)</td>
<td>3 MATH 2358</td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>First Semester Hours</th>
<th>Second Semester Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 2318</td>
<td>3</td>
</tr>
<tr>
<td>CS 3358</td>
<td>3</td>
</tr>
<tr>
<td>EE 2420</td>
<td>4</td>
</tr>
<tr>
<td>Life &amp; Physical Sciences Component Code 030</td>
<td>4 Life &amp; Physical Sciences Component Code 030</td>
</tr>
<tr>
<td>ENG Literature (Component Area Option Code 090/094)</td>
<td>3</td>
</tr>
</tbody>
</table>

| Sophomore | 15 | 16 |

<table>
<thead>
<tr>
<th>Junior</th>
<th>17</th>
<th>16</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 3339</td>
<td>3</td>
<td>CS 3398</td>
</tr>
<tr>
<td>EE 2400</td>
<td>4</td>
<td>MATH 3305</td>
</tr>
<tr>
<td>ENG Literature</td>
<td>3</td>
<td>Life &amp; Physical Sciences</td>
</tr>
<tr>
<td>Life &amp; Physical Sciences</td>
<td>4</td>
<td>HIST 1310 (American History Component Code 060)</td>
</tr>
<tr>
<td>CS Concentration elective: select one of the following</td>
<td>3</td>
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</tr>
<tr>
<td>CS 4310</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CS 4318</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CS 4380</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CS 4388</td>
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<td></td>
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</table>

<table>
<thead>
<tr>
<th>Senior</th>
<th>14</th>
<th>16</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 3369</td>
<td>3</td>
<td>Select one of the following:</td>
</tr>
<tr>
<td>CS 4328</td>
<td>3</td>
<td>CS 4318</td>
</tr>
<tr>
<td>HIST 1320 (American History Component Code 060)</td>
<td>3</td>
<td>CS 4326</td>
</tr>
<tr>
<td>ART 2313, DAN 2313, MU 2313, or TH 2313 (Creative Arts Component Code 050)</td>
<td>3</td>
<td>CS 4371</td>
</tr>
<tr>
<td>CS 4380</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CS 4398</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Math/Applied Math Minor</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>POSI 2320 (Government/Political Science Component Code 070)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Social &amp; Behavioral Sciences Component Code 080</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

1. Computer Science majors must take sixteen hours (4 courses) of Life & Physical Sciences 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 PHYS) as listed above. Field of Study requirements of PHYS 1430 and PHYS 2425 will be used to satisfy this requirement.

Total Hours: 120