Computer Engineering (BS)

Degree Requirements

General Education Requirements (54 Hours)

Area I – Written Composition (2 Courses, 6 Hours)
   A. 3 hours: EH 101
   B. 3 hours: EH 102

Area II – Humanities & Fine Arts (3 Courses, 9 Hours)
   A. 3 hours from: EH 215, EH 216, EH 225, EH 226, EH 235, EH 236
   B. 3 hours from: ARH 100, ARH 103, ARH 123, ARS 101, DRA 110, MUL 101
   C. 3 hours from: CA 110

Area III – Natural Sciences & Mathematics (4 Courses & Labs, 16 Hours)
   A. 4 hours: MA 125
   B. 12 hours from: CH 131 & CH 131L, PH 201 & PH 201L, PH 202 & PH 202L

Area IV – History, Social & Behavioral Sciences (3 Courses, 9 Hours)
   A. 3 hours from: HY 101, HY 102, HY 135, HY 136
   B. 6 hours from: AN 100, AN 101, CA 100, CA 211, ECO 215, ECO 216, GEO 114, GEO 115, GS 101, HY 101, HY 102, HY 135, HY 136, IS 100, IST 201, PSC 130, PSY 120, PSY 250, SY 109, SY 112

Area V Pre-Professional, Major, Elective Courses (4 Courses, 14 Hours)
   A. 14 hours from: MA 126, MA 227, MA 238, MA 267

Major Requirements (75 Hours)

Computer Engineering Major Core (24 Courses, 62 Hours)
   A. 2 hours: EG 101 or EG 201
   B. 3 hours: EG 231
   C. 13 hours: CPE 260, CSC 231, CSC 311, CSC 322
   D. 14 hours: EE 220, EE 223, EE 227, EE 263, EE 264, EE 268
   E. 16 hours: EE 321, EE 322, EE 328, EE 331, EE 334, EE 368
   F. 14 hours: EE 401, EE 404, EE 431, EE 446, EE 454, EE 457

Computer Technical Electives For Hardware Track (4 Courses, 12 Hours)
   A. 6 hours from: EE 438, EE 439, *EE 440, *EE 441, *EE 443, EE 444, EE 465, EE 468, EE 469, EE 470, EE 471, EE 473, CSC 410, CSC 411, CSC 412, CSC 413, CSC 414, CSC 415, CSC 416, CSC 417, CSC 418, CSC 434, CSC 440
   B. 6 hours from: EE 438, EE 439, *EE 440, EE 441, *EE 443, EE 444, EE 465, EE 468, EE 469, EE 470, EE 471, EE 473
      *Credit for both EE 440 & EE 443 not allowed OR

Computer Technical Electives For Software Track (4 Courses, 12 Hours)
   A. 9 hours from: CSC 331, CSC 332, CSC 333
   B. 3 hours from: EE 438, EE 439, *EE 440, EE 441, *EE 443, EE 444, EE 465, EE 468, EE 469, EE 470, EE 471, EE 473, CSC 410, CSC 411, CSC 412, CSC 413, CSC 414, CSC 415, CSC 416, CSC 417, CSC 418, CSC 434, CSC 440

Computer Senior Lab (1 Course, 1 Hour)
   A. 1 hour from: EE 437, EE 447, EE 449
Minor Requirements (0 Hours)

A minor is not required for this degree program

Notes:
• Recommended Course
• Hardware Track – Students will take 2 senior level EE or CSC Technical Elective courses along with 2 senior level EE Technical courses
• Software Track – Students will take 1 senior level EE or CSC Technical Elective course along with CSC 331, CSC 332 and CSC 333.
• Credit for both EE 440 & EE 443 not allowed
• All undergraduates must complete two designated writing credit (W) courses, at least one of which must be in the student’s major or minor

Additional Information

Professional Component Standing (PCS)

PCS is required to be eligible to take EE 300-level and EE 400-level courses. PCS is awarded when the students meet the following requirements.
• Courses: MA 125, MA 126, CH 131, CH 131L, PH 201, CPE 260, EE 220, EE 263, EH 101, EH 102
• C-grade or higher required in PCS courses
• Minimum Grade Point Average: 2.00 USA GPA

Students who fail to maintain at least a 2.00 GPA overall at the University of South Alabama will lose PCS and may be required to take or repeat appropriate courses as specified by the department chair to correct their deficiencies and may not be permitted to continue in 300- and 400-level engineering courses.

Graduation Plan

Computer Engineering (BS): (129 Total Hours)

First Year — Fall Semester

<table>
<thead>
<tr>
<th>Course ID</th>
<th>Course Description</th>
<th>Hours</th>
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<tbody>
<tr>
<td>MA 125</td>
<td>Calculus I</td>
<td>4</td>
</tr>
<tr>
<td>CH 131/CH 131L</td>
<td>General Chemistry I and Lab</td>
<td>4</td>
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<tr>
<td>EH 101</td>
<td>English Composition I</td>
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<tr>
<td>EG 101</td>
<td>Intro to Engineering &amp; Design</td>
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First Year — Spring Semester

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<th>Course Description</th>
<th>Hours</th>
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<tbody>
<tr>
<td>MA 126</td>
<td>Calculus II</td>
<td>4</td>
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<tr>
<td>PH 201/PH 201L</td>
<td>Calculus Based Physics I and Lab</td>
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</tr>
<tr>
<td>EH 102</td>
<td>English Composition II</td>
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</tbody>
</table>
CPE 260  |  Intro to C++ Programming  |  3  
CA 110  |  Public Speaking  |  3  

Total Hours  |  17  

Second Year — Fall Semester

<table>
<thead>
<tr>
<th>Course ID</th>
<th>Course Description</th>
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<tr>
<td>MA 227</td>
<td>Calculus III</td>
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<td>Calculus Based Physics II and Lab</td>
<td>4</td>
</tr>
<tr>
<td>EE 220</td>
<td>Circuit Analysis</td>
<td>3</td>
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<tr>
<td>EE 263</td>
<td>Digital Logic Design</td>
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<tr>
<td>MA 267</td>
<td>Discrete Math Structures</td>
<td>3</td>
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Total Hours  |  17  

Second Year — Spring Semester

<table>
<thead>
<tr>
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<th>Course Description</th>
<th>Hours</th>
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<tbody>
<tr>
<td>MA 238</td>
<td>Differential Equations</td>
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<td>Network Analysis</td>
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<tr>
<td>EE 264</td>
<td>Microprocessor Systems &amp; Interfacing</td>
<td>3</td>
</tr>
<tr>
<td>EE 268</td>
<td>Digital Logic Lab</td>
<td>1</td>
</tr>
<tr>
<td>CSC 231</td>
<td>Intro to Data Structures &amp; Algs</td>
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Total Hours  |  17  

Third Year — Fall Semester

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<thead>
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<th>Course ID</th>
<th>Course Description</th>
<th>Hours</th>
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<tbody>
<tr>
<td>EE 331</td>
<td>Physical Electronic</td>
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<tr>
<td>EE 321</td>
<td>Signals &amp; Systems</td>
<td>3</td>
</tr>
<tr>
<td>EE 227</td>
<td>Circuits and Devices Lab</td>
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</tr>
<tr>
<td>EG 231</td>
<td>Ethics &amp; Engineering Economics</td>
<td>3</td>
</tr>
<tr>
<td>EE 368</td>
<td>Microprocessor Systems &amp; Interfacing Lab</td>
<td>1</td>
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<tr>
<td>CSC 311</td>
<td>Networking and Communications</td>
<td>3</td>
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Total Hours  |  17  

southernalabama.edu/bulletin
### Third Year — Spring Semester

<table>
<thead>
<tr>
<th>Course ID</th>
<th>Course Description</th>
<th>Hours</th>
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<tbody>
<tr>
<td>EE 334</td>
<td>Digital Electronics</td>
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<tr>
<td>EE 328</td>
<td>Feedback Control Systems</td>
<td>3</td>
</tr>
<tr>
<td>EE 322</td>
<td>Prob Rand Sigs &amp; Stat Anlys</td>
<td>3</td>
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<tr>
<td>EE 457</td>
<td>Embedded Systems</td>
<td>3</td>
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<tr>
<td>EE 446**</td>
<td>Embedded Systems Lab</td>
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<td>CSC 322</td>
<td>Operating Systems</td>
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Total Hours 16

### Fourth Year — Fall Semester

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<tr>
<td>EE 431</td>
<td>Analog Electronics</td>
<td>3</td>
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<tr>
<td>EE 401*</td>
<td>Intro to ECE Design</td>
<td>1</td>
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<tr>
<td>EE 454</td>
<td>Digital Computer Architecture</td>
<td>3</td>
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<td>EE/CSC 4xx***</td>
<td>Technical Elective</td>
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<td>EE/CSC 4xx***</td>
<td>Technical Elective</td>
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Total Hours 16

### Fourth Year — Spring Semester

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<th>Hours</th>
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<tr>
<td>EE 4xx</td>
<td>Technical Service Lab</td>
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<tr>
<td>EE 404**</td>
<td>ECE Design</td>
<td>3</td>
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<tr>
<td>EE/CSC 4xx***</td>
<td>Technical Elective</td>
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<td>EE/CSC 4xx***</td>
<td>Technical Elective</td>
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<td>General Education</td>
<td>Area I, II or IV</td>
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Total Hours 13

### Notes

- * EE Courses only taught in the fall semester
- ** EE Courses only taught in the spring semester
- *** CpE technical electives must be selected from CSC and/or EE courses carrying a 400-number following the recommendations according to the select track with permission of the student's advisor.
Students with an adequate ACT/SAT score in English Composition will not be required to take EH 101 as a prerequisite to EH 102.

BOLD courses are required for Professional Component Standing (PCS). “C” grade or better in each course is required to obtain PCS in the Computer Engineering Program.

Appropriate software tools will be utilized in almost all CpE/EE courses.

## Major Milestones

### COMPUTER ENGINEERING SAMPLE 4-YEAR PLAN WITH MILESTONES

<table>
<thead>
<tr>
<th>Term 1</th>
<th>Course Description</th>
<th>Pre-req</th>
<th>Cr Hrs</th>
<th>Milestone Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>EH 101*</td>
<td>English Composition I</td>
<td></td>
<td>3</td>
<td>Must complete at least 12 hours with a 2.0 or higher GPA</td>
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<tr>
<td>MA 125</td>
<td>Calculus I</td>
<td>ACT Math 27</td>
<td>4</td>
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</tr>
<tr>
<td>CH 131/CH 131L</td>
<td>General Chemistry I</td>
<td>ACT Math 24</td>
<td>4</td>
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<tr>
<td>EG 101</td>
<td>Freshman Seminar</td>
<td>ACT Math 24</td>
<td>2</td>
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<tr>
<td>Fine Arts Elective</td>
<td></td>
<td></td>
<td>3</td>
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16

<table>
<thead>
<tr>
<th>Term 2</th>
<th>Course Description</th>
<th>Pre-req</th>
<th>Cr Hrs</th>
<th>Milestone Notes</th>
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<tbody>
<tr>
<td>EH 102</td>
<td>English Composition II</td>
<td>EH 101 or test score</td>
<td>3</td>
<td>MA 125</td>
</tr>
<tr>
<td>MA 126</td>
<td>Calculus II</td>
<td>MA 125</td>
<td>4</td>
<td>CH 131/CH 131L</td>
</tr>
<tr>
<td>PH 201/PH 201L</td>
<td>Physics I</td>
<td>MA 125 and EH 101</td>
<td>4</td>
<td>EH 101 or EH 105*</td>
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<tr>
<td>CPE 260</td>
<td>Introduction to C++ Programming</td>
<td>MA 125 (cc)</td>
<td>3</td>
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<tr>
<td>CA 110</td>
<td>Public Speaking</td>
<td></td>
<td>3</td>
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<tr>
<th>Term 3</th>
<th>Course Description</th>
<th>Pre-req</th>
<th>Cr Hrs</th>
<th>Milestone Notes</th>
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<tbody>
<tr>
<td>MA 227</td>
<td>Calculus III</td>
<td>MA 126</td>
<td>4</td>
<td>PH 201/PH 201L</td>
</tr>
<tr>
<td>MA 267</td>
<td>Discrete Math</td>
<td>ACT Math 23</td>
<td>3</td>
<td>MA 126</td>
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<tr>
<td>PH 202/PH 202L</td>
<td>Physics II</td>
<td>PH 201, MA 125 and EH 101</td>
<td>4</td>
<td>CPE 260</td>
</tr>
<tr>
<td>EE 220</td>
<td>Circuit Analysis</td>
<td>MA 125 and PH 201</td>
<td>3</td>
<td></td>
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<tr>
<td>EE 263</td>
<td>Digital Logic Design</td>
<td>CPE 260</td>
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17 Grade of "C" or better required in all Milestones for PCS

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<tr>
<th>Term 4</th>
<th>Course Description</th>
<th>Pre-req</th>
<th>Cr Hrs</th>
<th>Milestone Notes</th>
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<tbody>
<tr>
<td>MA 238</td>
<td>Differential Equations</td>
<td>MA 227 (cc)</td>
<td>3</td>
<td>EE 220</td>
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<tr>
<td>EE 223</td>
<td>Network Analysis</td>
<td>EE 220, PH 202, MA 227 (cc), and MA 238 (cc)</td>
<td>3</td>
<td>EE 263 or CSC 228</td>
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<tr>
<td>EE 268</td>
<td>Digital Logic Design Lab</td>
<td>EE 263 or CSC 228</td>
<td>1</td>
<td>Obtain PCS</td>
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<tr>
<td>EE 264</td>
<td>Microprocess Systems and Interfacing</td>
<td>EE 263 or CSC 228</td>
<td>3</td>
<td></td>
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<tr>
<td>CSC 231</td>
<td>Introduction to Data Structures and Algorithms</td>
<td>CPE 260</td>
<td>4</td>
<td></td>
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<tr>
<td>History/English Literature</td>
<td></td>
<td>EH 102</td>
<td>3</td>
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17 Grade of "C" or better required in all Milestones for PCS

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<th>Term 5</th>
<th>Course Description</th>
<th>Pre-req</th>
<th>Cr Hrs</th>
<th>Milestone Notes</th>
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<tbody>
<tr>
<td>EE 227</td>
<td>Circuits and Devices</td>
<td>EE 223 (cc) and EH 102 (cc)</td>
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<td>EH 102</td>
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<td>EE 331</td>
<td>Physical Electronics</td>
<td>CH 131, MA 238 and PH 202</td>
<td>3</td>
<td></td>
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<tr>
<td>EE 321</td>
<td>Signals, Systems, and Digital</td>
<td>MA 238 and EE 223</td>
<td>3</td>
<td></td>
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<tr>
<td>EE 368</td>
<td>Microprocess Systems and Interfacing Lab</td>
<td>EE 268 and EE 264 (cc)</td>
<td>1</td>
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<tr>
<td>Term 6</td>
<td>Course Description</td>
<td>Pre-req</td>
<td>Cr Hrs</td>
<td>Milestone Notes</td>
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<td>EE 334</td>
<td>Digital Electronics</td>
<td>EE 331</td>
<td>3</td>
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<td>EE 328</td>
<td>Feedback Control Systems</td>
<td>EE 321</td>
<td>3</td>
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<td>EE 322</td>
<td>Probability, Random Signals, and Statistical Analysis</td>
<td>MA 238 and EE 321 (cc)</td>
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<td>EE 446</td>
<td>Embedded Systems Design Lab</td>
<td>EE 457 (cc)</td>
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<td>EE 457</td>
<td>Embedded System Design</td>
<td>EE 264 and EE 368</td>
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<td>CSC 322</td>
<td>Operating Systems</td>
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**Term 7**

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<tr>
<td>Technical Elective</td>
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<tr>
<td>Technical Elective</td>
<td>EE/CSC 400 level or higher</td>
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<td>EE 431</td>
<td>Analog Electronics</td>
<td>EE 334</td>
<td>3</td>
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<td>EE 401 (W)</td>
<td>Introduction to ECE Design</td>
<td>EE 321, CA 110, EE 334 (cc) and EE 368 (cc)</td>
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<tr>
<td>EE 454</td>
<td>Digital Computer Architecture</td>
<td>EE 264 and EE 268</td>
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<tr>
<td>Social/Behavioral Elective</td>
<td>EE/CSC 400 level or higher</td>
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**Term 8**

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<tbody>
<tr>
<td>Technical Elective</td>
<td>EE/CSC 400 level or higher</td>
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Technical Elective  
EE/CSC 400 level or higher  
3

Senior Technical Elective Lab  
EE 400 level or higher  
1

EE 404 (W)  
ECE Design  
EE 401, EE 328, EE 334 and EE 368  
3

Social/Behavioral Elective  
3

13

**TOTAL 129**

All bolded courses meet general education requirements. See the departmental flow chart for the current listing of courses.

Courses listed as Milestones are required to obtain Professional Component Standing (PCS). All Milestone courses require a grade of "C" or better. Prerequisite courses denoted (cc) may be taken concurrently.

*Students who earn an English ACT score of 27, or a written SAT score of 610, can opt out of EH 101.

**Students not Term 1-Calculus I ready will exceed the 129 hours required for this degree. If math is not started prior to Fall of Year 1, you are likely extending your four-year graduation timetable. Students with ACT Math scores 21 and below should begin math courses in the summer before Fall of Year 1.**

No 300 level courses can be taken without PCS

Two designated writing (W) courses are required with at least one course chosen from offerings in the student's major or minor. Courses carrying this required credit are identified in the University Bulletin by a (W) after the course title.

The Sample 4-year plan is designed as a guide for students preparing for their course selections. This information provides only a suggested schedule. Actual course selections should be made in consultation with an advisor.

**Department Information**

<table>
<thead>
<tr>
<th>Department of Electrical and Computer Engineering Administrative Staff</th>
<th>(251) 460-6117</th>
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</thead>
<tbody>
<tr>
<td>Chair</td>
<td>Hulya Kirkici</td>
</tr>
<tr>
<td>Professors</td>
<td>Kirkici, Steadman, Woods</td>
</tr>
<tr>
<td>Associate Professors</td>
<td>El-Sharkh, Gong, Khan, Latif, Russ, Spencer, Thomas, Wang</td>
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<tr>
<td>Assistant Professors</td>
<td>Shaban, Touma</td>
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<tr>
<td>Emeritus Professors</td>
<td>Bosarge, Gungor, Sakla</td>
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<tr>
<td>Part-time Instructor</td>
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Department of Electrical and Computer Engineering website  
https://www.southalabama.edu/colleges/engineering/ece/index.html

The Department of Electrical and Computer Engineering offers the degrees of Bachelor of Science in Electrical Engineering (BSEE) and Bachelor of Science in Computer Engineering (BSCpE), both granted by the College of Engineering. The BSCpE program is administered by the ECE Department in collaboration with the School of Computing. The ECE Department also offers the degree of Master of Science in Electrical Engineering.
BSEE Program Educational Objectives

The program educational objectives (PEOs) of the Electrical Engineering Degree Program are to produce graduates who, during their first few years after graduation, will:

1. Achieve professional advancement with increasing responsibility, leadership, and mentorship.
2. Function effectively on multidisciplinary teams, and individually, to develop and apply electrical engineering solutions within a global, societal, and environmental context.
3. Communicate effectively and manage resources skillfully as members and leaders of their profession.
4. Advance professional competence through continuous learning such as studying for advanced degrees, professional registration, and leadership through ethical standards and professionalism.

BSEE Student Outcomes

By the time of graduation from the Electrical Engineering Program, students should attain the following outcomes:

1. an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
2. an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors
3. an ability to communicate effectively with a range of audiences
4. an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts
5. an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives
6. an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
7. an ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

The BSEE curriculum is designed to ensure the attainment of the student outcomes.

The Bachelor of Science in Electrical Engineering program is accredited by the Engineering Accreditation Commission of ABET, http://www.abet.org

Electrical Engineering is among the fastest evolving disciplines in our technological society. Engineering developments in electrical technology have provided, in a substantial way, improvement in the standard of living of humanity. The domain of the electrical engineer reaches from massive electrical energy systems to microscopic integrated circuits; from life studies in bioengineering to satellite communications systems; and from the control of electromagnetic radiation to the control of information flow in this field.

The highly diverse and rapidly evolving characteristics of this field requires a thorough understanding of fundamentals as well as flexibility in the design of individualized programs of study.

Therefore, emphasis is placed on mathematics, physics, humanities, social sciences, basic sciences and engineering sciences during the first two years. Sufficient flexibility is provided at the senior level to allow a student, in consultation with an advisor, to prepare a specialized course of study in six main concentration areas from the broad field of electrical engineering: 1 – Control Systems, 2 – Communications and Networks, 3 – Digital Systems, 4 – Electromagnetics and Optics, 5 – Electronics, and 6 – Power Systems. In addition, means are provided, through the Electrical and Computer Engineering Design Laboratory, for a student to pursue a design topic outside of, but related to, the formal coursework.

Students are required to take general education (GenEd) elective courses in four broad areas: (i) Literature, (ii) Humanities and Fine Arts, (iii) Natural Science and Mathematics and (iv) History, Social, and Behavioral Sciences. These courses provide breadth to the educational experience of Electrical Engineering and Computer Engineering students. They must be planned, in consultation with an academic advisor, to reflect a rationale appropriate to the educational objectives of the Departmental Programs, while conforming strictly to the requirements of the Articulation and General Studies Committee of the State of Alabama.

All students are required to successfully complete EH 101 and EH 102, English Composition I and II from area (i), plus a minimum of 18 semester hours of general education courses from areas (ii) and (iv). In area (ii), Public Speaking (CA110) is required for all Electrical and Computer Engineering students. Of the two remaining courses, one course must be in literature and one course must be in the fine arts. In area (iv), at least one course must be in history and at least one course must be from disciplines in the social and behavioral sciences.
Students in Electrical Engineering are required to become Student Members of the Institute of Electrical and Electronics Engineers (IEEE) when they enroll in EE 401 and EE 404. Through participation in the activities of such technical organizations the student becomes aware of the activities of electrical and computer engineers in society. An excellent opportunity is provided to students for contact with practicing professionals as well as fellow students.

Any Electrical Engineering student interested in pursuing a career in medicine or bioengineering should consult with an advisor for an appropriate sequence of courses which will meet the minimum requirements for entry into a medical school or the necessary life sciences background to enter a graduate program in bioengineering.

The award of the BSEE degree will allow the graduate to enter the professions of electrical engineering directly, or to continue his/her education at the graduate level.

**BScpE Program Educational Objectives**

The program educational objectives (PEOs) of the Computer Engineering Degree Program are to produce graduates who, during their first few years after graduation, will:

1. Achieve professional advancement with increasing responsibility, leadership and mentorship.
2. Function effectively on multidisciplinary teams, and individually, to develop and apply computer engineering solutions within a global, societal, and environmental context.
3. Communicate effectively and manage resources skillfully as members and leaders of their profession.
4. Advance professional competence through continuous learning such studying for advanced degrees, professional registration, and leadership through ethical standards and professionalism.

**BScpE Student Outcomes**

By the time of graduation from the BScpE program, a student will have demonstrated attainment of the following outcomes:

1. an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
2. an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors
3. an ability to communicate effectively with a range of audiences
4. an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts
5. an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives
6. an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
7. an ability to acquire and apply new knowledge as needed, using appropriate learning strategies

The BScpE curriculum is designed to ensure the attainment of the student outcomes.

The Bachelor of Science in Computer Engineering program is accredited by the Engineering Accreditation Commission of ABET, http://www.abet.org

The Computer Engineering program is geared to students who are interested in the design of digital computing systems, integrating both hardware and software design components.

In the Computer Engineering Degree Program, sequences of courses are chosen from Electrical and Computer Engineering and from Computer Science that produce an in-depth treatment of digital logic and systems theory. In addition, means are provided through the Electrical and Computer Engineering Design Laboratory, for a student to pursue a design topic outside of, but related to, the formal coursework.

Students are required to take general education (GenEd) elective courses in four broad areas: (i) Literature, (ii) Humanities and Fine Arts, (iii) Natural Science and Mathematics and (iv) History, Social, and Behavioral Sciences. These courses provide breadth to the educational experience of Electrical Engineering and Computer Engineering students. They must be planned, in consultation with an academic advisor, to reflect a rationale appropriate to the educational objectives of the Departmental Programs, while conforming strictly to the requirements of the Articulation and General Studies Committee of the State of Alabama.

All students are required to successfully complete EH 101 and EH 102, English Composition I and II from area (i), plus a minimum of 18 semester hours of general education courses from areas (ii) and (iv). In area (ii), Public Speaking (CA 110) is required for all
Electrical and Computer Engineering students. Of the two remaining courses, one course must be in literature and one course must be in the fine arts. In area (iv), at least one course must be in history and at least one course must be from disciplines in the social and behavioral sciences.

Students in Computer Engineering are required to become members of either the Institute of Electrical and Electronics Engineers (IEEE) or the Association for Computing Machinery (ACM) when they enroll in EE 401 and EE 404. Through participation in the activities of such technical organizations the student becomes aware of the activities of electrical and computer engineers in society. An excellent opportunity is provided to students for contact with practicing professionals as well as fellow students.

Any Computer Engineering student interested in pursuing a career in medicine or bioengineering should consult with an advisor for an appropriate sequence of courses which will meet the minimum requirements for entry into a medical school or the necessary life sciences background to enter a graduate program in bioengineering.

The award of the BSCpE degree will allow the graduate to enter the professions of electrical engineering or computer engineering directly, or to continue his/her education at the graduate level.

**BSEE And BSCpE Accelerated Bachelor's To Master's (ABM) Degree Option**

The Department of Electrical and Computer Engineering allows well-qualified EE and CpE undergraduates to follow an “Accelerated Bachelor’s to Master’s” study plan. This plan permits up to six credit hours of graduate coursework to count towards both the Bachelor’s (as Technical Electives) and the Master’s degrees, so that the Master’s degree is earned faster than usual. (The coursework concerned must individually satisfy the requirements of both degrees.) See a departmental advisor for specific details.