

# COMPUTER ENGINEERING (BS)

## Program Description

The BS in Computer Engineering program at SPU combines selected topics from our Computer Science and Electrical Engineering majors to provide you with skills to work at the interface between computer software and computer hardware.

The BS in Computer Engineering degree is accredited by the Engineering Accreditation Commission of ABET (<http://www.abet.org/accreditation/>).

## Entering and Completing the Major

In order to earn a degree, you must complete at least one academic major. SPU encourages students to explore various academic paths, so if you change your mind about a major, or want to include an additional program, you are able to do so, as outlined below.

Note that the University encourages you to enter your chosen major(s) as soon as you have determined it and are eligible to join it, especially by the start of your junior year. Students who transfer as juniors and seniors should enter a major within their first two quarters at SPU.

- If this is your first quarter at SPU and you identified a major in this department as your first choice on your application for admission to the University, you have gained entry to the major. To change or add a major, follow these instructions (<https://spu.atlassian.net/1/cp/a3th1keb/>).
- If you are an SPU student with an SPU cumulative GPA of 2.0 or better, follow these instructions (<https://spu.atlassian.net/1/cp/a3th1keb/>) to enter a major in this department.
- The University requires a grade of C- or better in all classes that apply to a major; however, programs may require higher minimum grades in specific courses. You may repeat an SPU course only once for a higher grade.
- To advance in this program, meet with your faculty advisor regularly to discuss your grades, course progression, and other indicators of satisfactory academic progress. If your grades or other factors indicate that you may not be able to successfully complete the major or minor, your faculty advisor can work with you to explore options, which may include choosing a different major.
- You must complete the major requirements that are in effect in the SPU Undergraduate Catalog for the year you enter the major.

## Computer Engineering (BS)

131 Credits Minimum, Including 45 Upper Division (UD)

Code	Title	Credits
<b>Computer Engineering Core</b>		
CPE 3280 or EE 3280	Microcontroller System Design	5
CPE 3350 or CSC 3350	Operating Systems Programming	3
CPE 3760 or EE 3760	Computer Organization and Assembly Language	5
Section Credits Required		13
<b>Computer Engineering Electives</b>		

Select two of the following, a third can be used as Tech Elective: 10

CPE 4750 or CSC 4750	Computer Networks	
CPE 4760 or CSC 4760	Advanced Computer Architecture	
EE 3722	Electronics II Analog Electronics	
EE 4770	Fundamentals of Advanced Embedded Systems	

Section Credits Required 10

### Computer Science Core

CSC 1230	Problem Solving and Programming	5
CSC 2430	Data Structures I	5
CSC 2431	Data Structures II	5

Section Credits Required 15

### Computer Science Electives <sup>1</sup>

Select four credits of the following: 4

CSC 3150	Systems Design	
CSC 3220	Applications Programming	
CSC 3310	Concepts in Programming Languages	
CSC 3430	Algorithm Design and Analysis	

Section Credits Required 4

### Electrical Engineering Requirements

EE 1210	Introduction to Logic System Design	5
EE 2726	Electric Circuits I	5
EE 2727 or EE 2728	Electric Circuits II Electric Circuits II - Expanded	4
EE 3721 & 3721L	Electronics I - Analog Devices and Circuits and Electronics I - Analog Devices and Circuits Lab	6

Section Credits Required 20

### Engineering Requirements

CPE 1502 or EE 1502	Electrical and Computer Engineering Fundamentals Electrical and Computer Engineering Fundamentals	1
EGR 3000 or GS 3001	Principles of Professional Practice Internship and Job Search Strategies	1
EGR 3810	General Engineering Design	5
CPE 4211	Computer Engineering Senior Design I	3
EGR 4812 or CPE 4212	Engineering Senior Design II Computer Engineering Senior Design II	3
EGR 4899 or CPE 4899	Engineering Capstone and Senior Design Computer Engineering Capstone and Senior Design	3
EGR 4941	Engineering Professional Experience <sup>3</sup>	1

Section Credits Required 17

### Mathematics Requirements

MAT 1234	Calculus I	5
MAT 1235	Calculus II	5
MAT 1236	Calculus III	5
MAT 1720	Mathematics for Computer Science	5
EGR 2200 or MAT 2200	Engineering Probability and Statistics Engineering Probability and Statistics	3
MAT 2401	Linear Algebra	3
MAT 3237	Differential Equations	3

Section Credits Required 29

**Math/Science Breadth Requirement**

Select three credits of the following: 3

CHM 1211 General Chemistry I  
or CHM 1310 Survey of General Chemistry

MAT 3238 Vector Calculus

MAT 3333 Statistical Modeling

MAT 4830 Mathematical Modeling

PHY 3315 Electricity and Magnetism I  
or EE 3315 Electricity and Magnetism I

Section Credits Required 3

**Science Requirements**

PHY 1121 Physics for Science and Engineering 5

PHY 1122 Physics for Science and Engineering 5

PHY 1123 Physics for Science and Engineering 5

Section Credits Required 15

**Technical Electives**<sup>1</sup>

Select five credits of the following:

BUS 3682 Social Venture Planning

CPE 4350 Advanced Operating Systems

CPE 4900 Independent Study in Computer Engineering

CPE 4960 Senior Project in Computer Engineering

CPE 4970 Directed Research in Computer Engineering

CSC 4210 Theory of Computation and Algorithm

CSC 4220 Cybersecurity Fundamentals

CSC 4310 Compiler Design

CSC 4350 Advanced Operating Systems

CSC 4410 Database Management

CSC 4430 Advanced Programming

CSC 4800 Advanced Issues in Computer Science

CSC 4930 Practicum in Computer Science - University Service

CSC 4931 Computer Science Practicum

CSC 4960 Project in Computer Science

DAT 4380 Introduction to Machine Learning

EE 3315 Electricity and Magnetism I

EE 3410 Signal and System Analysis

EE 3500 Power Systems Fundamentals

EE 3510 Power Electronics Fundamentals

EE 3520 Microgrids

EE 4311 Optics and Lasers

EE 4450 Control System Design

or EGR 4450 Control Systems Design

EE 4950 Topics in Electrical Engineering<sup>2</sup>

EE 4960 Senior Project

EGR 3311 Experimental Methods I

or PHY 3311 Experimental Methods I

EGR 3611 Appropriate and Sustainable Engineering I:  
Alternative Energy Systems

EGR 3800 Biomedical Engineering I

EGR 4615 Engineering Project Management

EGR 4930 Practicum - Service

EGR 4931 Engineering Practicum

MAT 3380 Introduction to Data Science

or DAT 3380 Introduction to Data Science

Section Credits Required 5

**Total Credits 131**

1

3000-level CSC courses (other than CSC 3000) not used for Computer Science Elective category can be used as Technical Electives.

2

EE 4950 may be repeated for additional tech elective credit if the topic is different.

3

A tech internship or professional experience must be approved before enrolling in EGR 4941 and must be completed before passing EGR 4941.

**Suggested Course Sequences****Four Year Plan Starting with Calculus**

Check the quarter, day and time in the current schedule as course offerings may change. Pay close attention to the pre-requisites of the courses.

Course	Title	Credits
<b>Freshman</b>		
<b>Variable</b>		
WRI 1000	Academic Inquiry and Writing Seminar <sup>1</sup>	5
WRI 1100	Disciplinary Research and Writing Seminar <sup>2</sup>	5
UFDN 1000	The Christian Faith	5
<b>Credits</b>		<b>15</b>
<b>Autumn</b>		
CSC 1230	Problem Solving and Programming	5
MAT 1234	Calculus I	5
UCOL 1000	University Colloquium <sup>2</sup>	1
<b>Credits</b>		<b>11</b>
<b>Winter</b>		
CSC 2430	Data Structures I	5
EE 1502	Electrical and Computer Engineering Fundamentals	1
MAT 1235	Calculus II	5
<b>Credits</b>		<b>11</b>
<b>Spring</b>		
CSC 2431	Data Structures II	5
MAT 1236	Calculus III	5
<b>Credits</b>		<b>10</b>
<b>Sophomore</b>		
<b>Variable</b>		5-10
Common Curriculum ( <a href="https://catalog.spu.edu/undergraduate/degree-requirements/baccalaureate-degree-requirements/common-curriculum/">https://catalog.spu.edu/undergraduate/degree-requirements/baccalaureate-degree-requirements/common-curriculum/</a> ) or Exploratory Curriculum ( <a href="https://catalog.spu.edu/undergraduate/degree-requirements/baccalaureate-degree-requirements/exploratory-curriculum/">https://catalog.spu.edu/undergraduate/degree-requirements/baccalaureate-degree-requirements/exploratory-curriculum/</a> ) (and CHM 1310 if needed)		
GS 3001	Internship and Job Search Strategies	1
MAT 2401	Linear Algebra	3
<b>Credits</b>		<b>9-14</b>
<b>Autumn</b>		
EE 1210	Introduction to Logic System Design	5
PHY 1121	Physics for Science and Engineering	5
<b>Credits</b>		<b>10</b>
<b>Winter</b>		
CPE 3760	Computer Organization and Assembly Language	5
MAT 3237	Differential Equations	3

PHY 1122	Physics for Science and Engineering	5
<b>Credits</b>		<b>13</b>
<b>Spring</b>		
CPE 3280	Microcontroller System Design	5
PHY 1123	Physics for Science and Engineering	5
<b>Credits</b>		<b>10</b>
<b>Junior</b>		
<b>Variable</b>		
CSC Elective <sup>3</sup>		5
Technical Electives <sup>3</sup>		8-12
Common Curriculum ( <a href="https://catalog.spu.edu/undergraduate/degree-requirements/baccalaureate-degree-requirements/common-curriculum/">https://catalog.spu.edu/undergraduate/degree-requirements/baccalaureate-degree-requirements/common-curriculum/</a> ) and Exploratory Curriculum ( <a href="https://catalog.spu.edu/undergraduate/degree-requirements/baccalaureate-degree-requirements/exploratory-curriculum/">https://catalog.spu.edu/undergraduate/degree-requirements/baccalaureate-degree-requirements/exploratory-curriculum/</a> )		5-10
CPE electives (EE 4770 or CSC 4750)		5-10
MAT 2200	Engineering Probability and Statistics (or the following year)	3
<b>Credits</b>		<b>26-40</b>
<b>Autumn</b>		
EE 2726	Electric Circuits I	5
GS 3001	Internship and Job Search Strategies (if not already taken)	1
<b>Credits</b>		<b>6</b>
<b>Winter</b>		
EE 2728	Electric Circuits II - Expanded	5
MAT 1720	Mathematics for Computer Science	5
<b>Credits</b>		<b>10</b>
<b>Spring</b>		
EGR 3810 or EE 3730	General Engineering Design or Engineering Design	5
EE 3721	Electronics I - Analog Devices and Circuits	5
EE 3721L	Electronics I - Analog Devices and Circuits Lab	1
<b>Credits</b>		<b>11</b>
<b>Senior</b>		
<b>Variable</b>		
EGR 4941	Engineering Professional Experience <sup>4</sup>	1
<b>Select two of the following:</b>		<b>10</b>
CPE 4750	Computer Networks (Spring alt years)	
EE 4770	Fundamentals of Advanced Embedded Systems (Fall alt years)	
EE 3722	Electronics II Analog Electronics (Fall)	
Common Curriculum ( <a href="https://catalog.spu.edu/undergraduate/degree-requirements/baccalaureate-degree-requirements/common-curriculum/">https://catalog.spu.edu/undergraduate/degree-requirements/baccalaureate-degree-requirements/common-curriculum/</a> ) or Exploratory Curriculum ( <a href="https://catalog.spu.edu/undergraduate/degree-requirements/baccalaureate-degree-requirements/exploratory-curriculum/">https://catalog.spu.edu/undergraduate/degree-requirements/baccalaureate-degree-requirements/exploratory-curriculum/</a> ) or Tech Electives <sup>5</sup>		25
<b>Credits</b>		<b>36</b>
<b>Autumn</b>		
CPE 4211	Computer Engineering Senior Design I	3
<b>Credits</b>		<b>3</b>
<b>Winter</b>		
EGR 4812 or EE 4212	Engineering Senior Design II or Electrical Engineering Senior Design II	3
<b>Credits</b>		<b>3</b>
<b>Spring</b>		
CPE 4899	Computer Engineering Capstone and Senior Design	3
CPE/CSC 3350	Operating Systems Programming	3
<b>Credits</b>		<b>6</b>
<b>Total Credits</b>		<b>190-209</b>

1

WRI 1000 Academic Inquiry and Writing Seminar must be taken before WRI 1100 Disciplinary Research and Writing Seminar.

2

Engineering majors should take the section be taught by an engineering faculty member.

3

Taken any quarter after satisfying pre-req(s). See link at the bottom of the page for a list.

4

Completion of an approved internship or certification is a required pre-req.

5

See link at bottom of page for technical elective list.

## Four Year Plan Starting with Algebra or Trigonometry

Check the quarter, day and time in the current schedule as course offerings may change. Pay close attention to the pre-requisites of the courses.

Course	Title	Credits
<b>Freshman</b>		
<b>Variable</b>		
WRI 1000	Academic Inquiry and Writing Seminar <sup>1</sup>	5
WRI 1100	Disciplinary Research and Writing Seminar <sup>2</sup>	5
UFDN 1000	The Christian Faith	5
Exploratory Curriculum ( <a href="https://catalog.spu.edu/undergraduate/degree-requirements/baccalaureate-degree-requirements/exploratory-curriculum/">https://catalog.spu.edu/undergraduate/degree-requirements/baccalaureate-degree-requirements/exploratory-curriculum/</a> )		5
<b>Credits</b>		<b>20</b>
<b>Autumn</b>		
CSC 1230	Problem Solving and Programming	5
UCOL 1000	University Colloquium <sup>2</sup>	1
MAT 1010	College Algebra (if needed)	3
<b>Credits</b>		<b>9</b>
<b>Winter</b>		
CSC 2430	Data Structures I	5
CPE/EE 1502	Electrical and Computer Engineering Fundamentals	1
MAT 1110	Precalculus	5
<b>Credits</b>		<b>11</b>
<b>Spring</b>		
CSC 2431	Data Structures II	5
MAT 1234	Calculus I	5
<b>Credits</b>		<b>10</b>
<b>Sophomore</b>		
<b>Variable</b>		
Common Curriculum ( <a href="https://catalog.spu.edu/undergraduate/degree-requirements/baccalaureate-degree-requirements/common-curriculum/">https://catalog.spu.edu/undergraduate/degree-requirements/baccalaureate-degree-requirements/common-curriculum/</a> ) or Exploratory Curriculum ( <a href="https://catalog.spu.edu/undergraduate/degree-requirements/baccalaureate-degree-requirements/exploratory-curriculum/">https://catalog.spu.edu/undergraduate/degree-requirements/baccalaureate-degree-requirements/exploratory-curriculum/</a> ) (and CHM 1310 if needed)		5
GS 3001	Internship and Job Search Strategies	1
<b>Credits</b>		<b>6</b>
<b>Autumn</b>		
EE 1210	Introduction to Logic System Design	5
PHY 1121	Physics for Science and Engineering	5
MAT 1235	Calculus II	5
<b>Credits</b>		<b>15</b>
<b>Winter</b>		
CPE/EE 3760	Computer Organization and Assembly Language	5
PHY 1122	Physics for Science and Engineering	5
MAT 1236	Calculus III	5
<b>Credits</b>		<b>15</b>
<b>Spring</b>		
CPE 3280	Microcontroller System Design	5

PHY 1123	Physics for Science and Engineering	5
MAT 2401	Linear Algebra	3
<b>Credits</b>		<b>13</b>
<b>Junior</b>		
<b>Variable</b>		
MAT 2200	Engineering Probability and Statistics (or the following year)	3
CPE electives (EE 4770 or CSC 4750)		10
CSC Elective <sup>3</sup>		5
Technical Electives <sup>3</sup>		8-12
Common Curriculum ( <a href="https://catalog.spu.edu/undergraduate/degree-requirements/baccalaureate-degree-requirements/common-curriculum/">https://catalog.spu.edu/undergraduate/degree-requirements/baccalaureate-degree-requirements/common-curriculum/</a> ) and/or Exploratory Curriculum ( <a href="https://catalog.spu.edu/undergraduate/degree-requirements/baccalaureate-degree-requirements/exploratory-curriculum/">https://catalog.spu.edu/undergraduate/degree-requirements/baccalaureate-degree-requirements/exploratory-curriculum/</a> )		5-10
<b>Credits</b>		<b>31-40</b>
<b>Autumn</b>		
EE 2726	Electric Circuits I	5
GS 3001	Internship and Job Search Strategies (if not already taken)	1
<b>Credits</b>		<b>6</b>
<b>Winter</b>		
MAT 1720	Mathematics for Computer Science	5
EE 2728	Electric Circuits II - Expanded	5
MAT 3237	Differential Equations	3
<b>Credits</b>		<b>13</b>
<b>Spring</b>		
EGR 3810 or EE 3730	General Engineering Design or Engineering Design	5
EE 3721	Electronics I - Analog Devices and Circuits	5
EE 3721L	Electronics I - Analog Devices and Circuits Lab	1
<b>Credits</b>		<b>11</b>
<b>Senior</b>		
<b>Variable</b>		
EGR 4941	Engineering Professional Experience <sup>4</sup>	1
<b>Select two of the following:</b>		<b>10</b>
CPE 4750	Computer Networks (Spring alt years)	
EE 4770	Fundamentals of Advanced Embedded Systems (Fall alt years)	
EE 3722	Electronics II Analog Electronics (Fall)	
Common Curriculum ( <a href="https://catalog.spu.edu/undergraduate/degree-requirements/baccalaureate-degree-requirements/common-curriculum/">https://catalog.spu.edu/undergraduate/degree-requirements/baccalaureate-degree-requirements/common-curriculum/</a> ) or Exploratory Curriculum ( <a href="https://catalog.spu.edu/undergraduate/degree-requirements/baccalaureate-degree-requirements/exploratory-curriculum/">https://catalog.spu.edu/undergraduate/degree-requirements/baccalaureate-degree-requirements/exploratory-curriculum/</a> ) or Tech Electives <sup>3</sup>		
<b>Credits</b>		<b>11</b>
<b>Autumn</b>		
CPE 4211	Computer Engineering Senior Design I	3
<b>Credits</b>		<b>3</b>
<b>Winter</b>		
EGR 4812 or EE 4212	Engineering Senior Design II or Electrical Engineering Senior Design II	3
<b>Credits</b>		<b>3</b>
<b>Spring</b>		
CPE 4899	Computer Engineering Capstone and Senior Design	3
CPE/CSC 3350	Operating Systems Programming	3
<b>Credits</b>		<b>6</b>
<b>Total Credits</b>		<b>183-192</b>

1

WRI 1000 Academic Inquiry and Writing Seminar must be taken before  
WRI 1100 Disciplinary Research and Writing Seminar.

2

Engineering majors should take the section be taught by an engineering faculty member.

3

See link at bottom of the page for a list.

4

Completion of an approved internship or certification is a required pre-req.

## Two Year Plan for a Transfer Student with or without a DTA

See below for the pre-requisite courses required to complete the degree in two years. Note also that without a DTA, it will depend on how many of the General Education Courses (Common Curriculum (<https://catalog.spu.edu/undergraduate/degree-requirements/baccalaureate-degree-requirements/common-curriculum/>), Exploratory Curriculum (<https://catalog.spu.edu/undergraduate/degree-requirements/baccalaureate-degree-requirements/exploratory-curriculum/>), etc (<https://catalog.spu.edu/undergraduate/degree-requirements/baccalaureate-degree-requirements/graduation-requirements-policies/>)). are completed before transferring as to whether or not the degree can be completed in two years.

Check the quarter, day and time in the current schedule as course offerings may change. Pay close attention to the pre-requisites of the courses.

Course	Title	Credits
<b>First Year</b>		
<b>Variable</b>		
CSC Breadth Elective and Tech Electives <sup>1</sup>		12-14
Common Curriculum ( <a href="https://catalog.spu.edu/undergraduate/degree-requirements/baccalaureate-degree-requirements/common-curriculum/">https://catalog.spu.edu/undergraduate/degree-requirements/baccalaureate-degree-requirements/common-curriculum/</a> ) and/or Exploratory Curriculum ( <a href="https://catalog.spu.edu/undergraduate/degree-requirements/baccalaureate-degree-requirements/exploratory-curriculum/">https://catalog.spu.edu/undergraduate/degree-requirements/baccalaureate-degree-requirements/exploratory-curriculum/</a> ) as needed		
MAT 2200	Engineering Probability and Statistics <sup>2</sup>	3
<b>Credits</b>		<b>15-17</b>
<b>Autumn</b>		
CSC 2330	Data Structures Programming	5
EE 1210	Introduction to Logic System Design	5
EE 2502 or EE 2726	Selected Circuits Topics for Transfer Students or Electric Circuits I	2
GS 3001	Internship and Job Search Strategies	1
<b>Credits</b>		<b>13</b>
<b>Winter</b>		
CPE 3760	Computer Organization and Assembly Language	5
EE 2728	Electric Circuits II - Expanded	5
MAT 1720	Mathematics for Computer Science	5
<b>Credits</b>		<b>15</b>
<b>Spring</b>		
CPE 3280	Microcontroller System Design	5
EGR 3810 or EE 3730	General Engineering Design or Engineering Design	5
EE 3721	Electronics I - Analog Devices and Circuits	5
EE 3721L	Electronics I - Analog Devices and Circuits Lab	1
<b>Credits</b>		<b>16</b>
<b>Second Year</b>		
<b>Variable</b>		
CSC Breadth Elective and Tech Electives <sup>1</sup>		
MAT 2200	Engineering Probability and Statistics (if needed)	3
EGR 4941	Engineering Professional Experience <sup>3</sup>	1

Common Curriculum (<https://catalog.spu.edu/undergraduate/degree-requirements/baccalaureate-degree-requirements/common-curriculum/>) and/or Exploratory Curriculum (<https://catalog.spu.edu/undergraduate/degree-requirements/baccalaureate-degree-requirements/exploratory-curriculum/>) as needed

Select two of the following: 10

CPE 4750	Computer Networks (Spring alt years)	
EE 4770	Fundamentals of Advanced Embedded Systems (Fall alt years)	
EE 3722 & 3722L	Electronics II Analog Electronics and Electronics II Analog Electronics Lab (Fall)	
<b>Credits</b>		<b>14</b>

#### Autumn

CSC 2431	Data Structures II	5
CPE 4211	Computer Engineering Senior Design I	3
<b>Credits</b>		<b>8</b>

#### Winter

EGR 4812 or EE 4212	Engineering Senior Design II or Electrical Engineering Senior Design II	3
<b>Credits</b>		<b>3</b>

#### Spring

CPE 3350	Operating Systems Programming	3
CPE 4899	Computer Engineering Capstone and Senior Design	3
<b>Credits</b>		<b>6</b>
<b>Total Credits</b>		<b>90-92</b>

1

Pay attention to pre-reqs. Spread between first and second year. See link at the bottom of the page for a list.

2

May be taken the first or second year.

3

Completed approved internship or certification is a required pre-req.

## Prerequisites for the Two Year Plan

The following courses must be completed before coming to SPU in order to finish at SPU in two years.

Code	Title	Credits
<b>Calculus Equivalent to SPU's</b>		
MAT 1234	Calculus I	
MAT 1235	Calculus II	
MAT 1236	Calculus III	

### Two Quarters of Programming in the Same Language <sup>1</sup>

Prog. I	
Prog II Data Structures	

### A Circuits I Class with Lab <sup>2</sup>

### Additional Math/Chemistry Equivalents to SPU's

MAT 2401	Linear Algebra	
MAT 3237	Differential Equations	
MAT 3238	Vector Calculus	
	or CHM 1211 General Chemistry I	

### Physics Equivalent to SPU's

PHY 1121	Physics for Science and Engineering	
PHY 1122	Physics for Science and Engineering	
PHY 1123	Physics for Science and Engineering	

1

The second must include data structures concepts. If in C++, CSC 2330 Data Structures Programming is waived.

2

Or take EE 2502 or EE 2726 at SPU in the Fall.

## Four Year Plan including Junior Fall Study Abroad

Check the quarter, day and time in the current schedule as course offerings may change. Pay close attention to the pre-requisites of the courses.

Course	Title	Credits
<b>Freshman</b>		
<b>Variable</b>		
WRI 1000	Academic Inquiry and Writing Seminar <sup>1</sup>	5
WRI 1100	Disciplinary Research and Writing Seminar <sup>2</sup>	5
UFDM 1000	The Christian Faith	5
<b>Credits</b>		<b>15</b>
<b>Autumn</b>		
CSC 1230	Problem Solving and Programming	5
MAT 1234	Calculus I	5
UCOL 1000	University Colloquium <sup>2</sup>	1
<b>Credits</b>		<b>11</b>
<b>Winter</b>		
CSC 2430	Data Structures I	5
EE 1502	Electrical and Computer Engineering Fundamentals	1
MAT 1235	Calculus II	5
<b>Credits</b>		<b>11</b>
<b>Spring</b>		
CSC 2431	Data Structures II	5
MAT 1236	Calculus III	5
<b>Credits</b>		<b>10</b>
<b>Sophomore</b>		
<b>Variable</b>		
Common Curriculum ( <a href="https://catalog.spu.edu/undergraduate/degree-requirements/baccalaureate-degree-requirements/common-curriculum/">https://catalog.spu.edu/undergraduate/degree-requirements/baccalaureate-degree-requirements/common-curriculum/</a> ) and/or Exploratory Curriculum ( <a href="https://catalog.spu.edu/undergraduate/degree-requirements/baccalaureate-degree-requirements/exploratory-curriculum/">https://catalog.spu.edu/undergraduate/degree-requirements/baccalaureate-degree-requirements/exploratory-curriculum/</a> ) (and CHM 1310 if needed)		5-10
GS 3001	Internship and Job Search Strategies	1
MAT 2401	Linear Algebra	3
<b>Credits</b>		<b>9-14</b>
<b>Autumn</b>		
EE 1210	Introduction to Logic System Design	5
PHY 1121	Physics for Science and Engineering	5
EE 2726	Electric Circuits I	5
<b>Credits</b>		<b>15</b>
<b>Winter</b>		
CPE 3760	Computer Organization and Assembly Language	5
MAT 3237	Differential Equations	3
EE 2728	Electric Circuits II - Expanded	5
PHY 1122	Physics for Science and Engineering	5
<b>Credits</b>		<b>18</b>
<b>Spring</b>		
CPE 3280	Microcontroller System Design	5
PHY 1123	Physics for Science and Engineering	5
<b>Credits</b>		<b>10</b>
<b>Junior</b>		
<b>Variable</b>		
MAT 2200	Engineering Probability and Statistics (or the following year)	3

## 6 Computer Engineering (BS)

CPE Electives <sup>3</sup>		10
EE 4770	Fundamentals of Advanced Embedded Systems	
CSC 4750	Computer Networks	
CSC Elective <sup>4</sup>		5
Technical Electives <sup>4</sup>		8-12
Common Curriculum ( <a href="https://catalog.spu.edu/undergraduate/degree-requirements/baccalaureate-degree-requirements/common-curriculum/">https://catalog.spu.edu/undergraduate/degree-requirements/baccalaureate-degree-requirements/common-curriculum/</a> ) and/ or Exploratory Curriculum ( <a href="https://catalog.spu.edu/undergraduate/degree-requirements/baccalaureate-degree-requirements/exploratory-curriculum/">https://catalog.spu.edu/undergraduate/degree-requirements/baccalaureate-degree-requirements/exploratory-curriculum/</a> )		5-10
<b>Credits</b>		<b>31-40</b>
<b>Autumn</b>		
Study Abroad Quarter (General Education credits)		15
<b>Credits</b>		<b>15</b>
<b>Winter</b>		
MAT 1720	Mathematics for Computer Science	5
<b>Credits</b>		<b>5</b>
<b>Spring</b>		
EGR 3810 or EE 3730	General Engineering Design or Engineering Design	5
EE 3721	Electronics I - Analog Devices and Circuits	5
EE 3721L	Electronics I - Analog Devices and Circuits Lab	1
<b>Credits</b>		<b>11</b>
<b>Senior</b>		
<b>Variable</b>		
EGR 4941	Engineering Professional Experience <sup>5</sup>	1
<b>Select two of the following (if not already completed):</b>		<b>10</b>
CPE 4750	Computer Networks (Spring alt years)	
EE 4770	Fundamentals of Advanced Embedded Systems (Fall alt years)	
EE 3722	Electronics II Analog Electronics (Fall)	
Common Curriculum ( <a href="https://catalog.spu.edu/undergraduate/degree-requirements/baccalaureate-degree-requirements/common-curriculum/">https://catalog.spu.edu/undergraduate/degree-requirements/baccalaureate-degree-requirements/common-curriculum/</a> ) and/ or Exploratory Curriculum ( <a href="https://catalog.spu.edu/undergraduate/degree-requirements/baccalaureate-degree-requirements/exploratory-curriculum/">https://catalog.spu.edu/undergraduate/degree-requirements/baccalaureate-degree-requirements/exploratory-curriculum/</a> ) or Technical Electives <sup>6</sup>		25
<b>Credits</b>		<b>36</b>
<b>Autumn</b>		
CPE 4211	Computer Engineering Senior Design I	3
<b>Credits</b>		<b>3</b>
<b>Winter</b>		
EGR 4812 or EE 4212	Engineering Senior Design II or Electrical Engineering Senior Design II	3
<b>Credits</b>		<b>3</b>
<b>Spring</b>		
CPE 4899	Computer Engineering Capstone and Senior Design	3
CPE/CSC 3350	Operating Systems Programming	3
<b>Credits</b>		<b>6</b>
<b>Total Credits</b>		<b>209-223</b>

1

WRI 1000 Academic Inquiry and Writing Seminar must be taken before  
WRI 1100 Disciplinary Research and Writing Seminar.

2

Engineering majors should take the section be taught by an engineering  
faculty member.

3

To be taken in either junior or senior year.

4

Taken any quarter after satisfying pre-req(s). See link at the bottom of the  
page for a list.

5

Completion of an approved internship or certification is a required pre-req.

6

See link at the bottom of page for a list.

## Technical and Computer Science Electives List

See the Requirements (p. 1) tab for a full list of technical and  
computer science electives.