COMPUTER ENGINEERING, B.S.E.

Degree Requirements (125-134 hours)

See College of Engineering and Computing (https://academicbulletins.sc.edu/undergraduate/engineering-computing/) for progression requirements and special academic opportunities.

Program of Study

Requirements	Credit Hours
1. Carolina Core	35-41
2. College Requirements	0
3. Program Requirements	57
4. Major Requirements	33-36

Founding Documents Requirement

All undergraduate students must take a 3-credit course or its equivalent with a passing grade in the subject areas of History, Political Science, or African American Studies that covers the founding documents including the United State Constitution, the Declaration of Independence, the Emancipation Proclamation and one or more documents that are foundational to the African American Freedom struggle, and a minimum of five essays from the Federalist papers. This course may count as a requirement in any part of the program of study including the Carolina Core, the major, minor or cognate, or as a general elective. Courses that meet this requirement are listed here (https://academicbulletins.sc.edu/undergraduate/founding-document-courses/).

1. Carolina Core Requirements (35-41 hours)

CMW – Effective, Engaged, and Persuasive Communication: Written (6 hours)

Must be passed with a grade of C or higher.

- ENGL 101
- ENGL 102

ARP – Analytical Reasoning and Problem Solving (8 hours)

Must be passed with a grade of C or higher.

- MATH 141
- MATH 142

SCI – Scientific Literacy (8 hours)

- CHEM 111 & CHEM 111L
- PHYS 211 & PHYS 211L - *must be passed with a grade of C or higher*

GFL – Global Citizenship and Multicultural Understanding: Foreign Language (0-6 hours)

Score two or better on foreign language placement test; or complete the 109 and 110 courses in FREN, GERM, LATN or SPAN; or complete the 121 course in another foreign language.

- CC-GFL courses (https://academicbulletins.sc.edu/undergraduate/carolina-core-courses/)

GHS – Global Citizenship and Multicultural Understanding: Historical Thinking (3 hours)

- any CC-GHS course (https://academicbulletins.sc.edu/undergraduate/carolina-core-courses/)

GSS – Global Citizenship and Multicultural Understanding: Social Sciences (3 hours)

- any CC-GSS course (https://academicbulletins.sc.edu/undergraduate/carolina-core-courses/)

AIU – Aesthetic and Interpretive Understanding (3 hours)

- any CC-AIU course (https://academicbulletins.sc.edu/undergraduate/carolina-core-courses/)

CMS – Effective, Engaged, and Persuasive Communication: Spoken Component [1] (3 hours)

- any CC-CMS course (https://academicbulletins.sc.edu/undergraduate/carolina-core-courses/)

INF – Information Literacy [1] (0 hours)

- ENGL 102

VSR – Values, Ethics, and Social Responsibility [1] (1 hour)

- CSCE 390 - *must be passed with a grade of C or higher*

[1] **Carolina Core Stand Alone or Overlay Eligible Requirements** — Overlay-approved courses offer students the option of meeting two Carolina Core components in a single course. A maximum of two overlays is allowed. The total Carolina Core credit hours for this program must add up to a minimum of 35 hours.

2. College Requirements (0 hours)

No college-required courses for this program.

3. Program Requirements (57 hours)

Supporting Courses (57 hours)

Course	Title	Credits
Foundational Courses		
MATH 241	Vector Calculus	3
MATH 242	Elementary Differential Equations	3
MATH 344	Applied Linear Algebra	3
MATH 344L	Applied Linear Algebra Lab	1
MATH 374	Discrete Structures (must be passed with a grade of C or higher)	3
PHYS 212	Essentials of Physics II	3
PHYS 212L	Essentials of Physics II Lab	1
STAT 509	Statistics for Engineers	3
ENGL 462	Technical Writing	3
or ENGL 463	Business Writing	
Lower Division Computing		
Must be passed with a grade of C or higher.		

CSCE 145	Algorithmic Design I	4
CSCE 146	Algorithmic Design II	4
CSCE 190	Computing in the Modern World	1
CSCE 211	Digital Logic Design	3
CSCE 212	Introduction to Computer Architecture	3
CSCE 215	UNIX/Linux Fundamentals	1
CSCE 240	Advanced Programming Techniques	3
CSCE 274	Robotic Applications and Design	3
Electrical Engineering		
ELCT 102	Electrical Science	3
ELCT 201	Introductory Electrical Engineering Laboratory	3
ELCT 221	Circuits	3
ELCT 222	Signals and Systems	3
Total Credit Hours		**57**

4. Major Requirements (33-36 hours)

Must be passed with a grade of C or higher.

Course	Title	Credits
CSCE 311	Operating Systems	3
CSCE 313	Embedded Systems	3
CSCE 350	Data Structures and Algorithms	3
CSCE 416	Introduction to Computer Networks	3
CSCE 490	Capstone Computing Project I	3
CSCE 491	Capstone Computer Engineering Project	3
CSCE 492	Capstone Computing Project II	3
CSCE 611	Advanced Digital Design	3
Total Credit Hours		**24**

Major Electives (9 hours)

Students must complete 9 hours of Major Electives below. Students may choose to complete a 12-hour concentration in Artificial Intelligence or Cybersecurity in place of the Major Electives.

Course	Title	Credits
Select from the following:		9
CSCE 330	Programming Language Structures	
CSCE 355	Foundations of Computation	
ELCT 321	Digital Signal Processing	
ELCT 331	Control Systems	
Other approved CSCE courses numbered 510 and higher		
Total Credit Hours		**9**

Concentrations (12 hours)

Students may choose to complete a 12-hour concentration below in place of the 9 hours of Major Electives.

Artificial Intelligence Concentration (12 hours)

Course	Title	Credits
CSCE 580	Artificial Intelligence	3
Select three courses from the following:		9
CSCE 555	Algorithms in Bioinformatics	
CSCE 567	Visualization Tools	
CSCE 574	Robotics	
CSCE 578	Text Processing	
CSCE 582	Bayesian Networks and Decision Graphs	
CSCE 585	Machine Learning Systems	
CSCE 587	Big Data Analytics	
Total Credit Hours		**12**

Cybersecurity Concentration (12 hours)

Course	Title	Credits
CSCE 201	Introduction to Computer Security	3
CSCE 522	Information Security Principles	3
CSCE 548	Building Secure Software	3
Select one course from the following:		3
CSCE 520	Database System Design	
CSCE 557	Introduction to Cryptography	
Total Credit Hours		**12**