Senior Year
First Semester
3 - COMM 1500 Intro. to Human Comm. or 3 - COMM 2500 Public Speaking
3 - ECE 4090 Intro. to Linear Control Systems²
2 - ECE 4950 Integrated System Design I²
3 - ENGL 3140 Technical Writing
6 - Computer Engineering Technical Requirement¹

Second Semester
2 - ECE 4960 Integrated System Design II
3 - Arts and Humanities Requirement¹ or
3 - Social Science Requirement¹
6 - Computer Engineering Technical Requirement³
3 - Special Requirement⁶

127 Total Semester Hours
¹ENGR 1050 and 1060 may be substituted for ENGR 1020
²This course must be passed with a grade of C or better either to transfer into Computer Engineering from General Engineering or to satisfy later course prerequisites.
³See General Education section of the Undergraduate Announcements. Six of these credit hours must also satisfy General Education Cross-Cultural Awareness and Science and Technology in Society Requirements.
⁴ENGR 1070, 1080 and 1090 may be substituted for ENGR 1410
¹²Credit hours selected from BIOC 1700*, 4310*, 4350*, 4110*, ECE 3210*, 4550*, 4210*, 4300, 4380, 4420, 4490, 4550, 4620, 4670, 4680, 4710, 4910, 4920*, 4930*, 4990*. Three of these credit requirements must include ECE 4270, 4300 or 4400. A maximum of six credits of courses marked with an asterisk and a maximum of three credits of courses marked with a plus may be used to satisfy this requirement.
⁶Three additional credits of university or college approved Arts and Humanities or Social Science courses; or ELE 3010 or 4010; or any additional three-credit, 4000-level course from footnote 5 above; or any course selected from the following: ECE 2220, 4040, 4060, 4180, 4190, 4220, 4310, 4320, 4360, 4370, 4460, 4570, 4560, 4610, or ME 3100; or one additional course selected from MATH 4120, 4350, 4430, 4450, 4410, or 4530.
¹¹See General Education Cross-Cultural Awareness and Science and Technology in Society Requirements.

COMPUTER INFORMATION SYSTEMS
Bachelor of Science
The Bachelor of Science in Computer Science is ideal for students interested in acquiring a broad-based liberal arts education that includes a strong and solid understanding of computer science. The curriculum is oriented toward design, implementation, and application of computer software systems to solve information processing problems. The program prepares students for employment in the computer software field or for continued study toward an advanced degree in computer science. Additional information can be found at http://www.clemson.edu/computing.

Students who change majors into Computer Science must have a cumulative grade-point average of 2.0 or higher.

Additional information can be found at http://www.clemson.edu/computing.

Freshman Year
First Semester
3 - ENGL 1030 Composition and Rhetoric
3 - MATH 1020 Business Calculus I or
4 - MATH 2060 Calculus of One Variable I or
4 - Introduction to Computing Requirement¹
4 - Natural Science Requirement¹
1 - Elective¹

Second Semester
3 - MATH 2070 Business Calculus II or
4 - MATH 1080 Calculus of One Variable II or
3 - Arts and Humanities (Non-Lit.) Requirement¹
4 - Introduction to Computing Requirement¹
3 - Natural Science Requirement¹
3 - Social Science Requirement¹
1 - Elective¹

Sophomore Year
First Semester
3 - CPSC 2070 Discrete Structures for Computing³
4 - CPSC 2120 Algorithms and Data Structures
3 - Arts and Humanities (Literature) Requirement⁴
3 - Oral Communication Requirement⁶
3 - Social Science Requirement⁶

Second Semester
3 - CPSC 2150 Software Development Foundations
4 - CPSC 2310 Intro. to Computer Organization
1 - CPSC 2910 Seminar in Professional Issues I
3 - MGT 2100 Principles of Management
3 - STAT 3090 Introductory Business Statistics³

Junior Year
First Semester
3 - ACCT 2110 Financial Accounting Concepts
3 - CPSC 2200 Microcomputer Applications
3 - CPSC 3220 Introduction to Operating Systems
3 - CPSC 3720 Intro. to Software Engineering
3 - Writing Requirement⁶

Second Semester
3 - ACCT 2120 Managerial Accounting Concepts
3 - CPSC 3600 Networks and Network Program.
3 - CPSC 3710 Systems Analysis or
3 - MGT 4520 Systems Analysis and Design
3 - Computer Science Requirement⁹
3 - Economics Requirement¹⁰

Senior Year
First Semester
3 - CPSC 4200 Computer Security Principles or
3 - CPSC 4240 System Admin. and Security
3 - CPSC 4620 Database Management Systems
3 - CPSC 4910 Seminar in Professional Issues II
3 - Business Requirement²
3 - Computer Science Requirement⁹

Second Semester
3 - MGT 3120 Decision Models for Management
3 - MKT 3010 Principles of Marketing
3 - Business Requirement²
3 - Computer Science Requirement⁹
3 - Information Systems Requirement¹²

122 Total Semester Hours
¹Select either the MATH 1020/2070, 1060/2070 or 1060/1080 sequence. Students who select the 1060/1080 sequence will have satisfied the two elective credits in the freshman year.
²Select either the CPSC 1010 and 1020 sequence; or the CPSC 1060 and 1070 sequence. The sequence of CPSC 1110 and 1020 is also acceptable with one elective credit taken in the first semester.
³Select from courses in BIOL, BCHM, CH, GEOL, MICR, PHYS; or ENSP 2000. At least one course must include a laboratory and satisfy the Natural Science General Education Requirement.
⁴See General Education Requirements.
⁵MATH 1190 may be substituted.
⁶Select from: COMM 1500, 2500, HON 2230, or the cluster of courses AS 3090, 3100, 4090, 4100; or ML 1010, 1020.
⁷MATH 3020 or STAT 3300 may be substituted.
⁸Select from: ENGL 3040, 3120, 3140, 3350, AS 3090, 3100, 4090, 4100; ML 3030, 3050, 4030, 4020.
⁹Select from 1000-level or higher CPSC courses or GPA 3070.
¹⁰No more than three credits of CPSC 3900 or 4810 may be applied to this requirement, and no more than six credits of CPSC 4820 may be applied. Up to three credits of ECE 3003 or higher courses; or MATH 3650; or MATH 4000-level courses may be substituted.
¹¹Select from ECON 2000, 2110, or 2120.
¹²Select from FIN 3060 and MGT 3900, 4020.
¹³Select from MGT 4520, 4540, 4550, 4560, or any 4000-level CPSC course. CPSC 4810 may not substitute.

Notes:
1. For graduation, a candidate for the BS degree in Computer Information Systems must have earned a grade of C or better in each CPSC course applied to the non-elective requirements of the degree.
2. A grade of C or better must be earned in all prerequisite courses (including CPSC and MATH courses) before enrolling in the next CPSC course.
3. General Education Cross-Cultural Awareness and Science and Technology in Society requirements must be satisfied.

COMPUTER SCIENCE Bachelor of Arts
The Bachelor of Arts in Computer Science is ideal for students interested in acquiring a broad-based liberal arts education that includes a strong and solid understanding of computer science. The curriculum is oriented toward design, implementation, and application of computer software systems to solve information processing problems. The program prepares students for employment in the computer software field or for continued study toward an advanced degree in computer science. Additional information can be found at http://www.clemson.edu/computing.

Students who change majors into Computer Science must have a cumulative grade-point average of 2.0 or higher.

Freshman Year
First Semester
3 - ENGL 1030 Composition and Rhetoric
3 - MATH 1020 Business Calculus I or
4 - MATH 1060 Calculus of One Variable I or
4 - Modern Language Requirement²
4 - Introduction to Computing Requirement¹
1 - Elective¹

15
Sophomore Year
First Semester
- CPSC 2070 Discrete Structures for Computing
- CPSC 210 Algorithms and Data Structures

Junior Year
First Semester
- STAT 3090 Introductory Business Statistics
- CPSC 1010 and 1020 sequence; or the CPSC 1110 and 1070 sequence. The six remaining hours may be selected from CPSC 1120/2230. The six remaining hours may be selected from courses in BIOL, BCHM, CH, GEOL, MICR, PHYH, or ENSP 2000. At least one course must include a laboratory and satisfy the Natural Science General Education Requirement.
- MATH 3020 or MATH 3110 or STAT 3330 may be substituted. MATH 3110 is required for computer graphics courses.

Second Semester
- CPSC 2150 Software Development Foundations
- CPSC 2310 Intro. to Computer Organization
- CPSC 2910 Seminar in Professional Issues I
- CPSC 2120 Algorithms and Data Structures

Senior Year
First Semester
- Writing Requirement
- Social Science Requirement
- CPSC 3220 Introduction to Operating Systems
- Arts and Humanities (Non-Lit.) Requirement

Second Semester
- Computer Science Requirement
- Social Science Requirement
- Theory Requirement

Notes:
1. For graduation, a candidate for the BA degree in Computer Science must have earned a grade of C or better in each CPSC course applied to the non-elective requirements for the degree.
2. A grade of C or better must be earned in all prerequisite courses (including CPSC and MATH courses) before enrolling in the next CPSC course.
3. General Education Cross-Cultural Awareness and Science and Technology in Society requirements must be satisfied.

COMPUTER SCIENCE
Bachelor of Science
The Computer Science program is oriented toward design, implementation, and application of software systems to solve information processing problems. This program is more technically oriented than the Computer Information Systems curriculum. It prepares students for employment in the computer software field or for continued study toward an advanced degree in computer science. This program is accredited by the Computing Accreditation Commission (CAC) of ABET, 111 Market Place, Suite 1050, Baltimore, MD 21202-4012; telephone: (410) 347-7700. Additional information can be found at http://www.clemson.edu/computing.

Students who change majors into Computer Science must have a cumulative grade-point average of 2.0 or higher.

Combined Bachelor’s/Master’s Plan
The School of Computing allows students to apply up to nine hours of graduate credit (6000- and 8000-level courses) toward both the bachelor’s and master’s degrees. Students participating in this program must have a minimum grade-point average of 3.4 and be admitted to the Graduate School prior to registering for graduate courses. Details of the suggested curriculum and program information are available from the School.

Freshman Year
First Semester
- ENGL 1030 Composition and Rhetoric
- MATH 1060 Calculus of One Variable I
- Introduction to Computing Requirement
- Social Science Requirement

Second Semester
- MATH 1080 Calculus of One Variable II
- Arts and Humanities (Non-Lit.) Requirement
- Introduction to Computing Requirement
- Natural Science Requirement

Sophomore Year
First Semester
- CPSC 2070 Discrete Structures for Computing
- CPSC 210 Algorithms and Data Structures
- Arts and Humanities (Literature) Requirement
- Natural Science Requirement
- Oral Communication Requirement

Second Semester
- CPSC 2150 Software Development Foundations
- CPSC 2310 Intro. to Computer Organization
- CPSC 2910 Seminar in Professional Issues I
- CPSC 3090 Introductory Business Statistics
- Natural Science Requirement

Junior Year
First Semester
- CPSC 3300 Computer Systems Organization
- CPSC 3600 Networks and Network Program.
- CPSC 3720 Intro. to Software Engineering
- MATH 3110 Linear Algebra
- Social Science Requirement

Second Semester
- CPSC 3220 Introduction to Operating Systems
- Arts and Humanities Requirement
- Social Science Requirement
- Computer Science Requirement
- Social Science Requirement
- Theory Requirement

Senior Year
First Semester
- CPSC 3520 Programming Languages
- Computer Science Requirement
- Writing Requirement
- Elective

Second Semester
- CPSC 4910 Seminar in Professional Issues II
- Arts and Humanities Requirement
- Social Science Requirement
- Computer Science Requirement
- Elective

122 Total Semester Hours

Notes:
1. Select either the CPSC 1010 and 1020 sequence; or the CPSC 1060 and 1070 sequence. The sequence of CPSC 1110 and 1020 is also acceptable with one elective credit taken in the first semester.
2. Two-semester sequence in the same physical or biological science, each including a laboratory, is required. Select from BIOL 1010/1050, 1010/1060; CH 1100, 1110; CH 1100, 1120; GEOL 1010/1030 and 1020 or 1120/1140; PHYS 1220/1240, 2210/2230. The six remaining hours may be selected from BIOL, BCHM, CH, GEOL, MICR, PHYH, or ENSP 2000. Excess credits in the lab sciences may apply to the remaining science requirements.

See General Education Requirements.

MATH 1190 may be substituted.

Select from courses in AAH, ANTH, ART, CHIN, COMM, DANC, EAS, ECON, ENGL, FR, GEOG, GER, HIST, HUM, ITAL, JAPN, MUSC, PA, PAS, PHIL, PSOC, PSYC, REL, RUSS, SOC, SPAN, THEA, WS.
ELECTRICAL ENGINEERING
Bachelor of Science

Electrical engineers are in high demand for a wide range of influential positions. Professional duties range from analytical problem solving to the design of components and systems. The scope of employment requires a unique breadth and depth of knowledge and technical skills, which are reflected in the Electrical Engineering program. This program also offers an excellent preparation for graduate education.

Detailed information can be found at www.clemson.edu/cecas/departments/ece/.

Building on a foundation of mathematical and physical sciences, students progress into the application of these in the engineering science areas of circuits, electronics, communications, controls, power, and electromagnetics. In these subjects, students also begin to apply the concepts and techniques learned to the design of circuits and systems. Senior technical design courses offer the opportunity to further develop expertise in a selected area.

In addition to these technical skills, students learn to communicate effectively, both orally and with the written word. Because engineers work for the benefit of society, the curriculum includes a strong component of humanities and social science courses. Also, many project design assignments enable the development of interpersonal, teamwork, and management skills, which are necessary for success in a professional engineering career.

Freshman Year
First Semester
- CH 1010 General Chemistry
- ENGL 1030 Composition and Rhetoric
- ENGR 1410 Programming and Problem Solving
- MATH 1060 Calculus of One Variable I
- Arts and Humanities Requirement or
- Social Science Requirement
- 16

Second Semester
- CH 1020 General Chemistry
- ENGR 1410 Programming and Problem Solving
- MATH 1080 Calculus of One Variable II
- PHYS 1220 Physics with Calculus II
- Arts and Humanities Requirement or
- Social Science Requirement
- 17

Sophomore Year
First Semester
- CPCS 1110 Introduction to Programming in C
- ECE 2100 Logic and Computing Devices
- ECE 2020 Electric Circuits I
- ECE 2090 Logic and Computing Devices Lab.
- ECE 2110 Electrical Engineering Lab.
- MATH 2060 Calculus of Several Variables
- PHYS 2210 Physics with Calculus II
- 17

Second Semester
- ECE 2120 Electrical Engineering Lab. II
- ECE 2620 Electric Circuits II
- ECE 2720 Computer Organization
- ECE 2730 Computer Organization Laboratory
- MATH 2080 Intro. to Ordinary Diff. Equations
- Arts and Humanities Requirement or
- Social Science Requirement
- 15

Junior Year
First Semester
- ECE 3110 Electrical Engineering Lab. III
- ECE 3200 Electronics II
- ECE 3300 Signals, Systems, and Transforms
- ECE 3600 Electric Power Engineering
- ECE 3800 Electromagnetics
- Advanced Mathematics Requirement
- 16

Second Semester
- ECE 3710 Random Signal Analysis
- ECE 3710 Random Signal Analysis Lab.
- ECE 3710 Microcontroller Interfacing
- ECE 3720 Microcontroller Interfacing Lab.
- ECE 3810 Fields, Waves, and Circuits
- ENGL 3140 Technical Writing
- 17

Senior Year
First Semester
- COMM 1500 Intro. to Human Comm. or
- COMM 2500 Public Speaking
- ECE 4090 Intro. to Linear Control Systems
- ECE 4270 Communications Systems
- ECE 4950 Integrated Systems Design I
- Electrical Engineering Technical Requirement
- 14

Second Semester
- ECE 4960 Integrated System Design II
- Arts and Humanities Requirement or
- Social Science Requirement
- Electrical Engineering Technical Requirement
- Special Requirement
- 14

126 Total Semester Hours

Notes:
1. A student is allowed to enroll in ECE courses (excluding ECE 2070, 2080, 3080) only when all prerequisites have been passed with a grade of C or better.
2. All Electrical Engineering students must have a cumulative engineering grade point average of 2.0 to enroll in any 3000- or 4000-level ECE courses.
3. No student may exceed a maximum of two attempts, excluding a W, to complete successfully any ECE course.

ENVIRONMENTAL ENGINEERING
Bachelor of Science

Our complex world faces many challenges, including contaminated water supplies, hazardous wastes, an increasing population and limited resources. Environmental engineers help to solve many of the environmental problems faced by society using the principles of biology, chemistry, physics, mathematics and earth sciences. An undergraduate degree in Environmental Engineering opens the door to a variety of rewarding career options. Environmental engineers protect water quality by designing water and wastewater treatment systems; ensure public safety by managing solid, hazardous and radioactive wastes; improve air quality by controlling emissions from mobile and stationary sources; reduce human health risks by tracking contaminants as they move through the environment; clean up toxic waste spills and restore historically contaminated sites; and design a more sustainable future by understanding our use of resources.

The curriculum for the Bachelor of Science degree in Environmental Engineering consists of 127 credit hours. All students participate in one professional seminar course and complete a capstone design project.

Freshman Year
First Semester
- CH 1010 General Chemistry
- ENGL 1030 Composition and Rhetoric
- ENGR 1410 Programming and Problem Solving
- MATH 1060 Calculus of One Variable I
- Arts and Humanities Requirement or
- Social Science Requirement
- 16

Second Semester
- CH 1020 General Chemistry
- ENGR 1410 Programming and Problem Solving
- MATH 1080 Calculus of One Variable II
- PHYS 1220 Physics with Calculus II
- Arts and Humanities Requirement or
- Social Science Requirement
- 17

Notes:
1. ENGR 1050 and 1060 may be substituted for ENGR 1020. This course must be passed with a grade of C or better either to transfer into Electrical Engineering from General Engineering or to satisfy later course prerequisites.
2. See General Education section of the Undergraduate Announcements. Six of these credit hours must also satisfy General Education Cross-Cultural Awareness and Science and Technology in Society Requirements.
3. MATH 1070, 1080 and 1090 may be substituted for MATH 1410.
4. Nine credits selected from BIOE 3700, 4310, 4350, 4710, ECE 2220, 4040, 4050, 4060, 4080, 4090, 4200, 4220, 4300, 4320, 4360, 4370, 4380, 4400, 4420, 4460, 4550, 4570, 4603, 4605, 4670, 4680, 4730, 4910*, 4920*, 4930*, 4990*, or ME 3100. A maximum of three credits of courses marked with an asterisk may be used to satisfy this requirement.
3. Three additional credits of university or college approved Arts and Humanities or Social Science courses; or ELE 3110 or 4010, or any additional three-credit, 4000-level course selected from footnote 6 above; or a course selected from the following list: ECE 3210, 4270, 4490; or one additional course selected from MATH 3110, 4120, 4190, 4300, 4460, 4450, or 4540.
4. Three additional credits of university or college approved Arts and Humanities or Social Science courses; or ELE 3110 or 4010, or any additional three-credit, 4000-level course selected from footnote 6 above; or a course selected from the following list: ECE 3210, 4270, 4490; or one additional course selected from MATH 3110, 4120, 4190, 4300, 4460, 4450, or 4540.
5. Notes:
1. A student is allowed to enroll in ECE courses (excluding ECE 2070, 2080, 3080) only when all prerequisites have been passed with a grade of C or better.
2. All Electrical Engineering students must have a cumulative engineering grade point average of 2.0 to enroll in any 3000- or 4000-level ECE courses.
3. No student may exceed a maximum of two attempts, excluding a W, to complete successfully any ECE course.

Notes:
1. A student is allowed to enroll in ECE courses (excluding ECE 2070, 2080, 3080) only when all prerequisites have been passed with a grade of C or better.
2. All Electrical Engineering students must have a cumulative engineering grade point average of 2.0 to enroll in any 3000- or 4000-level ECE courses.
3. No student may exceed a maximum of two attempts, excluding a W, to complete successfully any ECE course.

Notes:
1. A student is allowed to enroll in ECE courses (excluding ECE 2070, 2080, 3080) only when all prerequisites have been passed with a grade of C or better.
2. All Electrical Engineering students must have a cumulative engineering grade point average of 2.0 to enroll in any 3000- or 4000-level ECE courses.
3. No student may exceed a maximum of two attempts, excluding a W, to complete successfully any ECE course.