**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/caecs/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**  
1. CH 1010 General Chemistry  
2. ENGL 1030 Composition and Rhetoric  
3. MATH 1060 Calculus of One Variable I  
4. Arts and Humanities Requirement or  
   - Social Science Requirement  

**Second Semester**  
1. CH 1020 General Chemistry  
2. ENGR 1410 Programming and Problem Solving  
3. MATH 1080 Calculus of One Variable II  
4. PHYS 1220 Physics with Calculus I  
5. Arts and Humanities Requirement or  
   - Social Science Requirement  

**Sophomore Year**  
**First Semester**  
1. ECE 3110 Electrical Engineering Lab. III  
2. ECE 3220 Electronics I  
3. ECE 3300 Signals, Systems, and Transforms  
4. ECE 3600 Electric Power Engineering  
5. ECE 3800 Electromagnetics  
6. Advanced Mathematics Requirement  

**Second Semester**  
1. ECE 3120 Electrical Engineering Lab. IV  
2. ECE 3710 Random Signal Analysis  
3. ECE 3210 Electronics II  
4. ECE 3710 Microcontroller Interfacing  
5. ECE 3720 Microcontroller Interfacing Lab.  
6. ECE 3810 Fields, Waves, and Circuits  
7. ENGL 3140 Technical Writing  

**Junior Year**  
**First Semester**  
1. ECE 3110 Electrical Engineering Lab. III  
2. ECE 3220 Electronics I  
3. ECE 3300 Signals, Systems, and Transforms  
4. ECE 3600 Electric Power Engineering  
5. ECE 3800 Electromagnetics  
6. Advanced Mathematics Requirement  

**Second Semester**  
1. ECE 3120 Electrical Engineering Lab. IV  
2. ECE 3710 Random Signal Analysis  
3. ECE 3210 Electronics II  
4. ECE 3710 Microcontroller Interfacing  
5. ECE 3720 Microcontroller Interfacing Lab.  
6. ECE 3810 Fields, Waves, and Circuits  
7. ENGL 3140 Technical Writing  

**Senior Year**  
**First Semester**  
1. COMM 1500 Intro. to Human Comm. or  
2. COMM 2500 Public Speaking  
3. ECE 4090 Intro. to Linear Control Systems  
4. ECE 4270 Communications Systems  
5. ECE 4950 Integrated Systems Design I  
6. Electrical Engineering Technical Requirement  

**Second Semester**  
1. ECE 4900 Integrated System Design II  
2. Arts and Humanities Requirement or  
3. Social Science Requirement  
4. Electrical Engineering Technical Requirement  
5. Special Requirement  

**126 Total Semester Hours**

**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 these problems by 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**  
1. CH 1010 General Chemistry  
2. ENGR 1410 Programming and Problem Solving  
3. MATH 1080 Calculus of One Variable II  
4. PHYS 1220 Physics with Calculus I  

**Second Semester**  
1. CH 1020 General Chemistry  
2. ENGR 1410 Programming and Problem Solving  
3. MATH 1080 Calculus of One Variable II  
4. PHYS 1220 Physics with Calculus I  

**Notes:**
1. A grade of C or better must be earned in all prerequisite courses applied to the non-elective requirements of the degree.
2. Select CPSC 3120 or 3500
3. Select from: ENGL 3040, 3120, 3150, 3310, AS 3090, 3100, 4090, 4100, ML 3010, 3020, 4010, 4200.
4. Additional credits may be applied to this requirement, and no more than six credits of CPSC 4820 may be applied. Up to three credits of ECE 3000-level or higher courses; or MATH 3650, or MATH 4000-level courses may be substituted.
5. Select CPSC 3120 or 3500
6. MATH 4190, 4340, 4350, or 4530, or 4540
7. CPSC 3990 or 4810 may be used to satisfy this requirement.
8. ELE 3010 or any one additional three-credit, 4000-level course selected from footnote 6 above; or a course selected from the following list: ECE 3210, 4270, 4950, or one additional course selected from MATH 3110, 4120, 4130, 4140, 4510, 4400.
9. No student may exceed a maximum of two attempts, excluding a W, to complete successfully any ECE course.

**Junior Year**  
**First Semester**  
1. ECE 3110 Electrical Engineering Lab. III  
2. ECE 3220 Electronics I  
3. ECE 3300 Signals, Systems, and Transforms  
4. ECE 3600 Electric Power Engineering  
5. ECE 3800 Electromagnetics  
6. Advanced Mathematics Requirement  

**Second Semester**  
1. ECE 3120 Electrical Engineering Lab. IV  
2. ECE 3710 Random Signal Analysis  
3. ECE 3210 Electronics II  
4. ECE 3710 Microcontroller Interfacing  
5. ECE 3720 Microcontroller Interfacing Lab.  
6. ECE 3810 Fields, Waves, and Circuits  
7. ENGL 3140 Technical Writing  

**Senior Year**  
**First Semester**  
1. COMM 1500 Intro. to Human Comm. or  
2. COMM 2500 Public Speaking  
3. ECE 4090 Intro. to Linear Control Systems  
4. ECE 4270 Communications Systems  
5. ECE 4950 Integrated Systems Design I  
6. Electrical Engineering Technical Requirement  

**Second Semester**  
1. ECE 4960 Integrated System Design II  
2. Arts and Humanities Requirement or  
3. Social Science Requirement  
4. Electrical Engineering Technical Requirement  
5. Special Requirement  

**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 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.

**Freshman Year**  
**First Semester**  
1. CH 1010 General Chemistry  
2. ENGR 1410 Programming and Problem Solving  
3. MATH 1080 Calculus of One Variable II  
4. PHYS 1220 Physics with Calculus I  

**Second Semester**  
1. CH 1020 General Chemistry  
2. ENGR 1410 Programming and Problem Solving  
3. MATH 1080 Calculus of One Variable II  
4. PHYS 1220 Physics with Calculus I  

**Notes:**
1. MATH 1060 Calculus of One Variable I is required.
2. No more than nine credits of CPSC 3990 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 3000-level or higher courses; or MATH 3650, or MATH 4000-level courses may be substituted.
3. Select CPSC 3120 or 3500
4. Select from: ENGL 3040, 3120, 3150, 3310, AS 3090, 3100, 4090, 4100, ML 3010, 3020, 4010, 4200.
5. 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.
6. General Education Cross-Cultural Awareness and Science and Technology in Society requirements must be satisfied.