BACHELOR OF SCIENCE WITH A MAJOR IN ELECTRICAL ENGINEERING, ENERGY OPTION

The bachelor of science with a major in electrical engineering, energy option prepares students to work in technical energy fields such as electric utility companies and in research into improved methods of generation, transmission, and distribution of electrical energy.

The electrical engineering program is accredited by the Engineering Accreditation Commission of ABET (http://www.abet.org).

Double major

SEAS and non-SEAS students interested in pursuing the BS in electrical engineering as a double major should see Double Major under SEAS Regulations (http://bulletin.gwu.edu/engineering-applied-science/#seasregulationstext) in this Bulletin.

Visit the program website (http://www.ece.seas.gwu.edu/bachelor-science-electrical-engineering/) for additional information.

REQUIREMENTS

Code	Title	Credits
The following requirements must be fulfilled: 129 credits as outlined below. A minimum technical GPA of 2.20 and SEAS GPA of 2.00. A student's technical GPA is calculated using all technical engineering courses outlined in the fifth, sixth, seventh, and eighth semester of curriculum.		
Recommended program of study		
The plan of study lists all course requirements in sequence for the degree. Students should review this information carefully and consult their advisor before changing the sequence of any courses.		
First semester		
CHEM 1111	General Chemistry I [1]	
ECE 1010	Introduction to Electrical and Computer Engineering I	
MATH 1231	Single-Variable Calculus I [1]	
SEAS 1001	Engineering Orientation	
UW 1020	University Writing [1]	
Humanities, social science, or non-technical elective [2]		
Second semester		
ECE 1020	Introduction to Electrical and Computer Engineering II	
ECE 1120	C Programming for Electrical and Computer Engineering	
MATH 1232	Single-Variable Calculus II [1]	
PHIL 2135	Ethics in Business and the Professions	
PHYS 1021	University Physics I [1]	
or PHYS 1025	University Physics I with Biological Applications	
Humanities, social science, or non-technical elective [2]		
Third semester		
APSC 2057	Analytical Mechanics I	
APSC 2113	Engineering Analysis I	
ECE 2110	Circuit Theory	
ECE 2120	Engineering Seminar	
MATH 2233	Multivariable Calculus [1]	
PHYS 1022	University Physics II [1]	
or PHYS 1026	University Physics II with Biological Applications	
Fourth Semester		
APSC 2058	Analytical Mechanics II	
APSC 2114	Engineering Analysis II	
ECE 2115	Engineering Electronics	
ECE 2210	Circuits, Signals, and Systems	
ECE 2140	Design of Logic Systems	
Fifth Semester		
APSC 3115	Engineering Analysis III	
ECE 3130	Digital Electronics and Design	
ECE 3220	Introduction to Digital Signal Processing	
ECE 3315	Fields and Waves I	
ECE 3520	Microprocessors: Software, Hardware, and Interfacing	
Sixth Semester		
ECE 3125	Analog Electronics Design	
ECE 3915W	Electrical and Computer Engineering Capstone Project Lab I	
ECE 4320	Fields and Waves II	
MAE 2131	Thermodynamics	

MAE 3134	Linear System Dynamics
Seventh Semester	
ECE 4620	Electrical Power Systems
ECE 4710	Control Systems Design
ECE 4920W	Electrical and Computer Engineering Capstone Project Lab II
Humanities, social science, or non-technical elective [2]	
One technical elective [3]	
Eighth Semester	
ECE 3410	Communications Engineering
ECE 4610	Electrical Energy Conversion
ECE 4662	Power Electronics
ECE 4925W	Electrical and Computer Engineering Capstone Project Lab III
Humanities, social science, or non-technical elective [2]	

[1] Course satisfies the University General Education Requirement (http://bulletin.gwu.edu/university-regulations/general-education/) in math, science, and writing.

[2] All electrical and computer engineering students take five courses to satisfy the ECE humanities, social science, or non-technical elective requirement. Three of these courses—one in humanities and two in social sciences—must be on the University General Education Requirement list; one course must be PHIL 2135 (or NSC 4176 for students in the NROTC Program); and one course can be in the humanities/social sciences, or a non-technical course related to public health, safety, and welfare; global cultural, social, environmental, and economic factors; or innovation, entrepreneurship, and creativity. For the last category, students can consider taking DNSC 1051, DNSC 4404, EMSE 4410, ISTM 4223 MGT 3300, MGT 3301, MGT 3302, MGT 3303, or MGT 4003. The non-technical course cannot focus on scientific/mathematical approaches or technology. All courses selected to satisfy this requirement must be taken for a minimum of 3 credits and approved by the advisor.

[3] One 3-credit technical elective course must be selected with the approval of the advisor from upper-division undergraduate (2000 to 4000 level) or graduate courses in engineering, computer science, mathematics, physical sciences, or biological sciences. Exceptions must be approved by the advisor.