

BACHELOR OF SCIENCE WITH A MAJOR IN ELECTRICAL ENGINEERING

Electrical engineering provides the technological foundation for the modern information society. Almost every modern technological advance made today can be traced to the work of electrical engineers. Through GW's Electrical Engineering program, you will discover the basics of electrical engineering design, so that you can take your place alongside the engineers who make daily advances in sustainable energy, telecommunications, health care, defense, and other sectors. Our modern curriculum is complemented by well-staffed and well-equipped laboratories. You will have access to work on real-world projects through internships and will gain real-world design sequence experiences by being prepared in a wide variety of technical fields. Graduates have gone on to have careers at Tesla, Intel, Google, AT&T, Qualcomm, NASA, and Cisco.

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

ADMISSIONS

For more information on the admission process, please visit the Office of Undergraduate Admissions website. Applications may be submitted via the Common Application.

Supporting documents not submitted online should be mailed to:

Office of Undergraduate Admissions
The George Washington University
800 21st Street NW, Suite 100
Washington DC 20052

Contact for questions:
gwadm@gwu.edu or 202-994-6040

REQUIREMENTS

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 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.

Code	Title	Credits
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	
One humanities or social sciences 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	
One humanities or social sciences elective ²		
Third semester		
APSC 2113	Engineering Analysis I	
ECE 1125	Data Structures and Algorithms for ECE	
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 2114	Engineering Analysis II	
ECE 2115	Engineering Electronics	
ECE 2140	Design of Logic Systems	
ECE 2210	Circuits, Signals, and Systems	
One humanities or social sciences elective ²		

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 3135	Digital Design with FPGAs
ECE 3410	Communications Engineering
ECE 3915W	Electrical and Computer Engineering Capstone Project Lab I
ECE 4320	Fields and Waves II

Seventh semester

ECE 4710	Control Systems Design
ECE 4920W	Electrical and Computer Engineering Capstone Project Lab II

One technical elective³

Two ECE restricted electives⁴

Eighth semester

ECE 4610	Electrical Energy Conversion
ECE 4925W	Electrical and Computer Engineering Capstone Project Lab III

One humanities or social sciences elective²

Two technical electives³

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

²All electrical and computer engineering students take five courses to satisfy the ECE humanities and social science/non-technical 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 Ethics in Business and the Professions (or NSC 4176 Leadership and Ethics 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 Introduction to Business Analytics, DNSC 4404 Essentials of Project Management, EMSE 4410 Engineering Economic Analysis, ISTM 4223 Innovation Ventures MGT 3300 Entrepreneurship, MGT 3301 Small Business Management, MGT 3302 e-Entrepreneurship, MGT 3303 Women's Entrepreneurial Leadership, or MGT 4003 Management of the Growing Entrepreneurial Venture. 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 Three 3-credit technical elective courses 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.

⁴ The two ECE restricted electives must be selected with the approval of the advisor from ECE courses at the 3000 level or above. Exceptions must be approved by the advisor.

*Course satisfies the university general education requirement in math, science, and writing.

**At least two social and behavioral sciences courses must be selected from the University General Education Requirement list (<http://bulletin.gwu.edu/university-regulations/general-education/>); the remaining course must be selected from either the University General Education Requirement list or the SEAS General Education Requirement list (<https://www.ece.seas.gwu.edu/bachelor-science-electrical-engineering/>). At least one humanities course must be selected from the University General Education Requirement list; the remaining courses must be selected from either the University General Education Requirement list or the SEAS General Education Requirement list.

The two ECE-restricted electives must be selected from upper level ECE courses with approval of the advisor. Three 3-credit technical elective courses must be chosen with the approval of the advisor from advanced undergraduate or graduate courses in engineering, computer science, mathematics, physical sciences, or biological sciences.

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COMBINED PROGRAM

- Dual Bachelor of Science with a major in electrical engineering and Master of Science in the field of computer engineering (<http://bulletin.gwu.edu/engineering-applied->

science/electrical-computer-engineering/combined-bs-electrical-engineering-ms-computer-engineering/)

- Dual Bachelor of Science with a major in electrical engineering and Master of Science in the field of electrical engineering (<http://bulletin.gwu.edu/engineering-applied-science/electrical-computer-engineering/combined-bs-ms-electrical-engineering/>)
- Dual Bachelor of Science with a major in electrical engineering and Master of Science in the field of telecommunications engineering (<http://bulletin.gwu.edu/engineering-applied-science/electrical-computer-engineering/combined-bs-electrical-engineering-ms-telecommunications-engineering/>)