BACHELOR OF SCIENCE WITH A MAJOR IN ELECTRICAL ENGINEERING

Electrical engineers design the enabling technology for all applications of electricity; examples include energy, telecommunications, the Internet, biomedical instrumentation, and electromagnetic applications. The bachelor of science with a major in electrical engineering degree program focuses on signal processing; communication theory and practice; voice, data, video and multimedia communication networks; very large scale integrated (VLSI) circuit design and applications; and control and power systems. Students can take electives in advanced topics, such as optical networks, broadband wireless networks, and technologies for the next generation of information systems.

Bachelor of Science With a Second Major in Electrical Engineering

Any undergraduate student who is enrolled at GW may declare a second major in electrical engineering only if their primary degree is a Bachelor of Science. The student must meet the degree requirements for Bachelor of Science in electrical engineering, including SEAS general, major, technical electives, humanities/social science, and SEAS/technical GPA requirements. Students in other bachelor’s degree programs (e.g., BA, BBA, BFA) are required to complete a double degree (http://bulletin.gwu.edu/university-regulations/#DDegrees).

Graduation grade-point average criteria:
To satisfactorily complete a second major in electrical engineering, a student must have a minimum grade-point average of 2.2 in all technical engineering courses outlined in the fifth, sixth, seventh, and eighth semesters of the curriculum.

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

REQUIREMENTS

All electrical engineering majors must fulfill the following requirements:

A total of 132 credits hours 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 semesters 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.
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  Design of Logic Systems II
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

Technical elective 3
Two ECE restricted electives 4

Eighth semester

ECE 4610  Electrical Energy Conversion
ECE 4925W  Electrical and Computer Engineering Capstone Project Lab II
PHIL 2135  Ethics in Business and the Professions

Two technical electives 3
Humanities or social sciences elective 2

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

2 To satisfy the SEAS humanities and social science requirement, all electrical and computer engineering (ECE) students must take three humanities courses, one of which must be PHIL 2135 (or NSC 4176 for students in the NROTC Program) and three social science courses, including two courses in the same discipline and one course from a different discipline. These courses are selected from the SEAS/Electrical and Computer Engineering Department’s pre-approved humanities and social science lists (https://www.seas.gwu.edu/humanities-and-social-science-requirement), but at least one humanities course and two social science courses must also be on the University General Education Requirement (http://bulletin.gwu.edu/university-regulations/general-education) list. All courses selected to satisfy this requirement must be taken for a minimum of 3 credits.

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 (http://www.seas.gwu.edu/sites/www.seas.gwu.edu/files/downloads/HSS%20Form%20Fall%202015%20Admits%201_0.pdf). 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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