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.

**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 his or her 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 earning other bachelor degrees (e.g., BA, BBA, BFA) will be 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**

**Recommended program of study**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tr>
<td><strong>First semester</strong></td>
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<tr>
<td>CHEM 1111</td>
<td>General Chemistry I</td>
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<tr>
<td>ECE 1010</td>
<td>Introduction to Electrical and Computer Engineering I</td>
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<td>MATH 1231</td>
<td>Single-Variable Calculus I</td>
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<td>UW 1020</td>
<td>University Writing</td>
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<td>SEAS 1001</td>
<td>Engineering Orientation</td>
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<tr>
<td><strong>Second semester</strong></td>
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<tr>
<td>ECE 1020</td>
<td>Introduction to Electrical and Computer Engineering II</td>
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**Third semester**

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<tr>
<td>APSC 2057</td>
<td>Analytical Mechanics I</td>
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<tr>
<td>APSC 2113</td>
<td>Engineering Analysis I</td>
<td></td>
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<tr>
<td>ECE 2110</td>
<td>Circuit Theory</td>
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<td>ECE 2120</td>
<td>Engineering Seminar</td>
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<td>MATH 2233</td>
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<td>PHYS 1022</td>
<td>University Physics II</td>
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**Fourth Semester**

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<tr>
<td>APSC 2058</td>
<td>Analytical Mechanics II</td>
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<tr>
<td>APSC 2114</td>
<td>Engineering Analysis II</td>
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<td>ECE 2115</td>
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<td>ECE 2210</td>
<td>Circuits, Signals, and Systems</td>
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<td>ECE 2140</td>
<td>Design of Logic Systems I</td>
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**Fifth Semester**

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<tr>
<td>APSC 3115</td>
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<td>ECE 3130</td>
<td>Digital Electronics and Design</td>
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<td>ECE 3220</td>
<td>Introduction to Digital Signal Processing</td>
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<td>ECE 3315</td>
<td>Fields and Waves I</td>
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<tr>
<td>ECE 3520</td>
<td>Microprocessors: Software, Hardware, and Interfacing</td>
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**Sixth Semester**

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<tr>
<td>ECE 3125</td>
<td>Analog Electronics Design</td>
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<tr>
<td>ECE 3915W</td>
<td>Electrical and Computer Engineering Capstone Project Lab I</td>
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<tr>
<td>ECE 4320</td>
<td>Fields and Waves II</td>
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<td>MAE 2131</td>
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<td>MAE 3134</td>
<td>Linear System Dynamics</td>
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**Seventh Semester**
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<tr>
<td>ECE 4710</td>
<td>Control Systems Design</td>
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<tr>
<td>ECE 4920W</td>
<td>Electrical and Computer Engineering Capstone Project Lab II</td>
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<tr>
<td>Technical elective ³</td>
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**Eighth Semester**

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<tr>
<td>ECE 3410</td>
<td>Communications Engineering</td>
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<tr>
<td>ECE 4610</td>
<td>Electrical Energy Conversion</td>
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<tr>
<td>ECE 4925W</td>
<td>Electrical and Computer Engineering Capstone Project Lab III</td>
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<tr>
<td>ECE 6662</td>
<td>Power Electronics</td>
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<tr>
<td>PHIL 2135</td>
<td>Ethics in Business and the Professions</td>
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</table>

¹ Course satisfies the university general education requirement in math, science, and writing.

² 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%2001_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.

³ Technical electives 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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