Mechanical engineering encompasses a vast range of industrial activities. Mechanical engineers conceive, plan, design, and direct the manufacture, distribution, and operation of complex systems. Applications include aerospace, energy conversion, computer-aided design and manufacturing, power and propulsion systems, robotics, and control systems. The bachelor of science with a major in mechanical engineering, medical preparation option degree program prepares students for application to medical school. Students are prepared to work in research and development or to pursue graduate study in the fields of biomechanics and biotechnology. The mechanical engineering (ME) program is accredited by the Engineering Accreditation Commission of ABET (https://www.abet.org/).

**Double major**

SEAS and non-SEAS students interested in pursuing the BS in mechanical 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.mae.seas.gwu.edu/programs-degrees/) for additional information.

**REQUIREMENTS**

The following requirements must be fulfilled: 137 credits in required and elective courses.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td><strong>First semester</strong></td>
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</tr>
<tr>
<td>BISC 1111</td>
<td>Introductory Biology: Cells and Molecules</td>
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<tr>
<td>CHEM 1111</td>
<td>General Chemistry I ¹</td>
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<tr>
<td>MAE 1001</td>
<td>Introduction to Mechanical and Aerospace Engineering</td>
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</tr>
<tr>
<td>MATH 1231</td>
<td>Single-Variable Calculus I ¹</td>
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</tr>
<tr>
<td>SEAS 1001</td>
<td>Engineering Orientation</td>
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</tr>
<tr>
<td>UW 1020</td>
<td>University Writing ¹</td>
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<tr>
<td><strong>Second semester</strong></td>
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<tr>
<td>CHEM 1112</td>
<td>General Chemistry II ¹</td>
<td></td>
</tr>
<tr>
<td>MAE 1117</td>
<td>Introduction to Engineering Computations</td>
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<tr>
<td><strong>Third semester</strong></td>
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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>
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<tr>
<td>BISC 1112</td>
<td>Introductory Biology: The Biology of Organisms</td>
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<tr>
<td>MAE 2117</td>
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<tr>
<td>MATH 2233</td>
<td>Multivariable Calculus ¹</td>
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<td><strong>Fourth semester</strong></td>
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<tr>
<td>APSC 2058</td>
<td>Analytical Mechanics II</td>
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<tr>
<td>APSC 3115</td>
<td>Engineering Analysis III</td>
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<tr>
<td>CE 2220</td>
<td>Introduction to the Mechanics of Solids</td>
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<tr>
<td>MAE 1004</td>
<td>Engineering Drawing and Computer Graphics</td>
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<tr>
<td>MAE 2131</td>
<td>Thermodynamics</td>
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<tr>
<td>PHYS 1022</td>
<td>University Physics II</td>
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<tr>
<td><strong>Fifth semester</strong></td>
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<tr>
<td>CHEM 2151</td>
<td>Organic Chemistry I ¹</td>
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<tr>
<td>CHEM 2153</td>
<td>Organic Chemistry Laboratory I ¹</td>
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<tr>
<td>MAE 3119</td>
<td>Electronics and Devices for Mechanical Engineers</td>
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<tr>
<td>MAE 3126</td>
<td>Fluid Mechanics I</td>
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<td>MAE 3127</td>
<td>Fluid Mechanics Lab</td>
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<td>MAE 3191</td>
<td>Mechanical Design of Machine Elements</td>
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<tr>
<td>PSYC 1001</td>
<td>General Psychology ((counts as one humanities or social sciences elective))</td>
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<td><strong>Sixth semester</strong></td>
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<td>CHEM 2152</td>
<td>Organic Chemistry II ¹</td>
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<td>CHEM 2154</td>
<td>Organic Chemistry Laboratory II ¹</td>
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<tr>
<td>MAE 3120</td>
<td>Methods of Engineering Experimentation</td>
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<td>MAE 3134</td>
<td>Linear System Dynamics</td>
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<td>MAE 3187</td>
<td>Heat Transfer</td>
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<td>MAE 3193</td>
<td>Mechanical Systems Design</td>
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<tr>
<td>MAE 3166W</td>
<td>Materials Science and Engineering</td>
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<tr>
<td>MAE 3192</td>
<td>Manufacturing Processes and Systems</td>
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<td>MAE 4149</td>
<td>Thermal Systems Design</td>
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<tr>
<td>MAE 4151</td>
<td>Capstone Design Project I</td>
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<tr>
<td>MAE 4182</td>
<td>Electromechanical Control System Design</td>
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One humanities or social sciences elective ²

<table>
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<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>MAE 3167W</td>
<td>Mechanics of Materials Lab</td>
</tr>
<tr>
<td>MAE 4152W</td>
<td>Capstone Design Project II</td>
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</table>

Four humanities or social sciences electives for a total of at least 12 credits

¹ Course satisfies the University General Education Requirement in quantitative reasoning, scientific reasoning, and written communication.

² To satisfy the SEAS humanities, social science, and non-technical elective requirement, all mechanical engineering students must take one humanities course and two social science courses from the University General Education Requirement (http://bulletin.gwu.edu/university-regulations/general-education/); PHIL 2135, and two additional humanities, social science, or non-technical courses from the SEAS list of preapproved electives (https://www.seas.gwu.edu/humanities-and-social-science-requirement/) Each course selected to satisfy this requirement must be taken for at least 3 credits.