BACHELOR OF SCIENCE WITH A MAJOR IN MECHANICAL ENGINEERING, BIOMECHANICAL OPTION

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, biomechanical option degree program prepares students to work in the biomedical industry or to pursue graduate study in biomedical engineering. It provides a strong foundation in human anatomy and physiology, biomechanics, biomaterials, and design of biomedical devices. The mechanical engineering (ME) program is accredited by the 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 (https://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

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tr>
<td><strong>Recommended program of study</strong></td>
<td><strong>First semester</strong></td>
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<tr>
<td>CHEM 1111</td>
<td>General Chemistry I</td>
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<td>or CHEM 1113</td>
<td>General Chemistry for Engineers</td>
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<tr>
<td>MAE 1001</td>
<td>Introduction to Mechanical and Aerospace Engineering</td>
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<tr>
<td>MATH 1231</td>
<td>Single-Variable Calculus I *</td>
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<td>SEAS 1001</td>
<td>Engineering Orientation</td>
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<tr>
<td>UW 1020</td>
<td>University Writing *</td>
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<td>One humanities and social sciences elective **</td>
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<tr>
<td><strong>Second semester</strong></td>
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<tr>
<td>MAE 1004</td>
<td>Engineering Drawing and Computer Graphics</td>
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<tr>
<td>MAE 1117</td>
<td>Introduction to Engineering Computations</td>
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<td><strong>Third semester</strong></td>
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<tr>
<td>APSC 2057</td>
<td>Analytical Mechanics I</td>
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<td>APSC 2113</td>
<td>Engineering Analysis I</td>
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<td>MAE 2117</td>
<td>Engineering Computations</td>
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<tr>
<td>MAE 3192</td>
<td>Manufacturing Processes and Systems</td>
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<td>MATH 2233</td>
<td>Multivariable Calculus *</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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<td>APSC 3115</td>
<td>Engineering Analysis III</td>
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<td>CE 2220</td>
<td>Introduction to the Mechanics of Solids</td>
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<td>MAE 2131</td>
<td>Thermodynamics</td>
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<td>PHYS 1022</td>
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<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 3166W</td>
<td>Materials Science and Engineering</td>
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<td>MAE 3191</td>
<td>Mechanical Design of Machine Elements</td>
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<td>MAE 3119</td>
<td>Electronics and Devices for Mechanical Engineers</td>
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<td>BME 4820</td>
<td>Anatomy and Physiology for Engineers</td>
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<td>MAE 3120</td>
<td>Methods of Engineering Experimentation</td>
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<td>MAE 3128</td>
<td>Biomechanics I</td>
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<td>MAE 3134</td>
<td>Linear System Dynamics</td>
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<td>MAE 3167W</td>
<td>Mechanics of Materials Lab</td>
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<td>MAE 3187</td>
<td>Heat Transfer</td>
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<td>MAE 3193</td>
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<td>MAE 4151</td>
<td>Capstone Design Project I</td>
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<td>MAE 4149</td>
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<td>MAE 4182</td>
<td>Electromechanical Control System Design</td>
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<tr>
<td>MAE 6238</td>
<td>Biomaterials</td>
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**Eighth semester**

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<tr>
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<td>Capstone Design Project II</td>
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<td>MAE 3171</td>
<td>Patent Law for Engineers</td>
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<td>Three humanities or social sciences electives (total 9 credits)</td>
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*Course satisfies the University General Education Requirement (https://bulletin.gwu.edu/university-regulations/general-education/) in math, science, and writing.

**To satisfy the SEAS Humanities and Social Science requirement, all mechanical engineering students must take one humanities course and two social sciences courses from the University General Education Requirement (https://bulletin.gwu.edu/university-regulations/general-education/) list; PHIL 2135, and two additional humanities or social science or non-technical courses from the Department of Mechanical and Aerospace Engineering’s list of approved electives. All courses taken to satisfy this requirement must be offered for at least 3 credits.

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