Mechanical Engineering, A.A.

Degree Offered

• Associate of Arts

Nature of the Program

Mechanical engineering is a broad technical discipline. It integrates knowledge of the physical sciences and mathematics for the design, construction, and manufacture, testing, analysis, use, and operation of a device, structure, a machine, a process, or a system in service to humanity. Its development parallels the growth of industry. Modern society needs mechanical engineers who have broad and deep training in the fundamentals of engineering and related sciences and who have developed versatility in analyzing and solving complex problems. Mechanical engineers must not only possess a high level of professional expertise but also have an appreciation for the impact of engineering solutions in a societal context, including ethical and economic considerations.

The associate degree program provides the foundation to complete a bachelor program in mechanical engineering at West Virginia University. Students planning to enter a bachelor program at another institution should determine the transfer equivalencies for the courses offered at Potomac State College of WVU and the institution they plan to attend following completion of the associate degree program.

Career Opportunities

Mechanical engineers can find employment in a wide range of industries, government agencies, and educational institutions where they are concerned with many functions. Mechanical engineers can be employed to determine economical conversions of energy from natural sources into useful energy for power, light, heating, cooling, and transportation; design and production of machines to lighten the burden of human work. Others plan and develop systems for using energy machines and resources. Mechanical engineers can also be hired to process materials into products useful to mankind and to educate and train specialists who deal with mechanical systems.

FACULTY

CHAIR

• Vicki Huffman - Ph.D. Biomedical Science
  Year @ PSC (2005)

PROFESSOR

• Mohammad Saifi - M.S. Electrical Engineering
  Year @ PSC (1983)

ASSOCIATE PROFESSOR

• Joan Vogtman - M.S. Applied Physics
  Year @ PSC (2008)

General Education Foundations

Please use this link to view a list of courses that meet each GEF requirement. (http://registrar.wvu.edu/gef/)

NOTE: Some major requirements will fulfill specific GEF requirements. Please see the curriculum requirements listed below for details on which GEFs you will need to select.

General Education Foundations

<table>
<thead>
<tr>
<th>F1 - Composition &amp; Rhetoric</th>
<th>3-6</th>
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</thead>
<tbody>
<tr>
<td>ENGL 101</td>
<td>Introduction to Composition and Rhetoric</td>
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<tr>
<td>&amp; ENGL 102</td>
<td>and Composition, Rhetoric, and Research</td>
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<tr>
<td>or ENGL 103</td>
<td>Accelerated Academic Writing</td>
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<tr>
<td>F2A/F2B - Science &amp; Technology</td>
<td>4-6</td>
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<tr>
<td>F3 - Math &amp; Quantitative Reasoning</td>
<td>3-4</td>
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<tr>
<td>F4 - Society &amp; Connections</td>
<td>3</td>
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<tr>
<td>F5 - Human Inquiry &amp; the Past</td>
<td>3</td>
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<tr>
<td>F6 - The Arts &amp; Creativity</td>
<td>3</td>
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<tr>
<td>F7 - Global Studies &amp; Diversity</td>
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</table>
Please note that not all of the GEF courses are offered at all campuses. Students should consult with their advisor or academic department regarding the GEF course offerings available at their campus.

**Curriculum Requirements**

**GEF Elective (5, 6 or 7)**  
ENGL 101 Introduction to Composition and Rhetoric  
& ENGL 102 Introduction to Composition, Rhetoric, and Research (GEF 1)  
MATH 155 Calculus 1 (GEF 3 - minimum grade of C-)  
MATH 156 Calculus 2 (GEF 8 - minimum grade of C-)  
MATH 251 Multivariable Calculus (minimum grade of C-)  
MATH 261 Elementary Differential Equations (minimum grade of C-)  
PHYS 111 General Physics (GEF 8 - minimum grade of C-)  
PHYS 112 General Physics (GEF 8)  
CHEM 115 & 115L Fundamentals of Chemistry and Fundamentals of Chemistry 1 - Laboratory (GEF 2)  
ECON 201 Principles of Microeconomics (GEF 4)  
EE 221 Introduction to Electrical Engineering  
& EE 222 and Introduction to Electrical Engineering Laboratory  
ENGR 101 Engineering Problem Solving 1  
ENGR 102 Engineering Problem-Solving 2  
ENGR 191 First-Year Seminar  

A minimum GPA of 2.0 is required for the following courses:  
MAE 241 Statics  
MAE 242 Dynamics  
MAE 243 Mechanics of Materials  

Elective  

Total Hours  

**Suggested Plan of Study**

**First Year**

<table>
<thead>
<tr>
<th>Semester</th>
<th>Fall</th>
<th>Hours</th>
<th>Spring</th>
<th>Hours</th>
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<tbody>
<tr>
<td><strong>Fall</strong></td>
<td>ENGL 101 (GEF 1)</td>
<td>3</td>
<td>ENGL 102 (GEF 1)</td>
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<tr>
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<td>MATH 155 (GEF 3)</td>
<td>4</td>
<td>MATH 156 (GEF 8)</td>
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<tr>
<td></td>
<td>CHEM 115 &amp; 115L (GEF 2)</td>
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<td>PHYS 111 (GEF 8)</td>
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<td></td>
<td>ENGR 101</td>
<td>2</td>
<td>ENGR 102</td>
<td>3</td>
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<td>ENGR 191</td>
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<td>Elective</td>
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<td><strong>Total</strong></td>
<td><strong>15</strong></td>
<td><strong>Spring</strong></td>
<td><strong>14</strong></td>
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**Second Year**

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<thead>
<tr>
<th>Semester</th>
<th>Fall</th>
<th>Hours</th>
<th>Spring</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td><strong>Fall</strong></td>
<td>MATH 251</td>
<td>4</td>
<td>ECON 201 (GEF 4)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>PHYS 112 (GEF 8)</td>
<td>4</td>
<td>MATH 261</td>
<td>4</td>
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<td>EE 221 &amp; EE 222</td>
<td>4</td>
<td>MAE 242</td>
<td>3</td>
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<td>MAE 241</td>
<td>3</td>
<td>MAE 243</td>
<td>3</td>
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<td></td>
<td></td>
<td></td>
<td>GEF Elective (5, 6 or 7)</td>
<td>3</td>
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<td></td>
<td><strong>Total</strong></td>
<td><strong>15</strong></td>
<td><strong>Spring</strong></td>
<td><strong>16</strong></td>
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Total credit hours: 60
Major Learning Outcomes

MECHANICAL ENGINEERING

Upon completion of the associates in mechanical engineering program, students will be able to:

1. Explain the basics concepts of electrical engineering, statics, dynamics, mechanics or materials and thermodynamics.
2. Use mathematical, chemical and physical concepts to solve engineering-related problems.
3. Transfer into a bachelor degree program in mechanical engineering.