Civil Engineering

Degree Offered

• Associate of Arts

Nature of the Program

Civil engineering includes a wide variety of technological areas, including construction, geotechnical, hydro-technical, structural, transportation, and water and environmental engineering. Civil engineers work with problems that directly impact the health and economic vitality of people and communities. These problems include waste disposal, environmental pollution, transportation systems analysis and design, water resource development, and the design, construction, and rehabilitation of constructed facilities such as dams, bridges, buildings, and highways.

The goal of the undergraduate curriculum in civil engineering is to prepare graduate civil engineers to meet the present and the future infrastructural and environmental needs of society. This requires an education based on scientific and engineering fundamentals as well as one that incorporates experience in engineering design using modern technology. Because the systems they design impact the public directly, civil engineers must be aware of the social and environmental consequences of their designs. Graduates must be prepared to work and communicate with other professionals in a variety of associations and organizations. Ethics and life-long learning are essential components in the education of civil engineers.

The associate degree program provides the foundation courses required to complete a bachelor program in civil 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

Civil engineers can gain employment in the public or private sectors involved in design, construction, research, and education, as well for state or local government. Civil engineers commonly work on the design and construction of roads, buildings, airports, tunnels, dams, bridges, and systems for water supply and sewage treatment.

FACULTY

CHAIR
• Vicki Huffman - Ph.D. Biomedical Science

ASSOCIATE PROFESSOR
• Deepak Mehra - Ph.D. Civil Engineering

PROFESSOR
• Mohammad Saifi - M.S. Electrical Engineering
  M.S. Industrial Engineering

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 &amp; ENGL 102 or ENGL 103</td>
<td></td>
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<tr>
<td>Introduction to Composition and Rhetoric and Composition, Rhetoric, and Research Accelerated Academic Writing</td>
<td></td>
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<thead>
<tr>
<th>F2A/F2B - Science &amp; Technology</th>
<th>4-6</th>
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<tbody>
<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>
</tr>
<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>
<td>3</td>
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</tbody>
</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

**A minimum GPA of 2.0 is required in all MAE courses.**

<table>
<thead>
<tr>
<th>GEF Requirements (5, 6, or 7)</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>ENGR 191 First-Year Seminar</td>
<td>1</td>
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<tr>
<td>ENGL 101 Introduction to Composition and Rhetoric &amp; ENGL 102 Composition, Rhetoric, and Research (GEF 1)</td>
<td>6</td>
</tr>
<tr>
<td>MATH 155 Calculus 1 (GEF 3)</td>
<td>4</td>
</tr>
<tr>
<td>MATH 156 Calculus 2 (GEF 8)</td>
<td>4</td>
</tr>
<tr>
<td>MATH 251 Multivariable Calculus</td>
<td>4</td>
</tr>
<tr>
<td>MATH 261 Elementary Differential Equations</td>
<td>4</td>
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<tr>
<td>CHEM 115 Fundamentals of Chemistry &amp; 115L Fundamentals of Chemistry 1 - Laboratory (GEF 2)</td>
<td>4</td>
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<tr>
<td>PHYS 111 General Physics (GEF 8)</td>
<td>4</td>
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</table>

Select one of the following (GEF 8): 4

| Principles of Biology & Principles of Biology Laboratory | 4     |
| Fundamentals of Chemistry & Fundamentals of Chemistry 2 - Laboratory | 4     |
| General Physics | 4     |
| Principles of Microeconomics (GEF 4) | 3     |
| Engineering Problem Solving 1 | 2     |
| Engineering Problem-Solving 2 | 3     |
| Statics | 3     |
| Dynamics | 3     |
| Mechanics of Materials | 3     |
| Thermodynamics | 3     |
| Elective | 2     |

**Total Hours** 60

## Suggested Plan of Study

### First Year

<table>
<thead>
<tr>
<th>Fall</th>
<th>Hours</th>
<th>Spring</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGR 101</td>
<td>2 MATH 156 (GEF 8)</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>ENGL 101 (GEF 1)</td>
<td>3 ENGR 102</td>
<td>3</td>
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</tr>
<tr>
<td>MATH 155 (GEF 3)</td>
<td>4 PHYS 111 (GEF 8)</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>CHEM 115 &amp; 115L (GEF 2)</td>
<td>4 ECON 201 (GEF 4)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>ENGR 191</td>
<td>1</td>
<td>14</td>
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### Second Year

<table>
<thead>
<tr>
<th>Fall</th>
<th>Hours</th>
<th>Spring</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>MATH 251</td>
<td>4 MATH 261</td>
<td>4</td>
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<tr>
<td>ENGL 102 (GEF 1)</td>
<td>3 MAE 242</td>
<td>3</td>
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<tr>
<td>MAE 241</td>
<td>3 MAE 243</td>
<td>3</td>
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<tr>
<td>Select one of the following (GEF 8):</td>
<td>4 MAE 320</td>
<td>3</td>
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</tr>
<tr>
<td>PHYS 112</td>
<td>GEF Elective (5, 6, or 7)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Course</td>
<td>Credits</td>
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<tr>
<td>BIOL 115</td>
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<tr>
<td>&amp; BIOL 116</td>
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<tr>
<td>CHEM 116</td>
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<tr>
<td>&amp; 116L</td>
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<tr>
<td>Elective</td>
<td>2</td>
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Total credit hours: 60

**Major Learning Outcomes**

**CIVIL ENGINEERING**

Upon completion of the associate degree in civil engineering, students will be able to

1. Apply knowledge of mathematics, science, and engineering
2. Analyze and interpret data
3. Use mathematical, chemical and physical concepts to solve engineering-related problems.
4. Transfer into a bachelor degree program in civil engineering.