Biometric Systems

Degree Offered

- Associate of Arts

Nature of the Program

Biometric systems use specific traits about an organism to identify it. Biometric systems engineers design hardware and software to measure a signature trait of the human body, compare that signature to a database, and then render a decision from a matching process. Biometric systems are being used in positive personal identification in law enforcement, access control, banking and a wide range of business and administrative systems. Biometric systems can also be used in health care for identification of specific human conditions via implantable devices and the automated administration of life-saving medical therapies. Biometric systems can also impact our daily lives with advances in integrated sensors, signal/image processing, computer and mass storage technology that allow inanimate objects to identify, interact with and assist their users.

The associate degree program provides the foundation to complete a bachelor program in biometric systems 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

Biometric system engineers typically work in the IT security industry for businesses and other organizations that design and use data defense methods. Employment can also be found at firms specializing in forestry, forensics, and health care.

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.

<table>
<thead>
<tr>
<th>General Education Foundations</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>F1 - Composition &amp; Rhetoric</td>
<td>3-6</td>
</tr>
<tr>
<td>ENGL 101 &amp; ENGL 102 or ENGL 103</td>
<td>Introduction to Composition and Rhetoric and Composition, Rhetoric, and Research Accelerated Academic Writing</td>
</tr>
<tr>
<td>F2A/F2B - Science &amp; Technology</td>
<td>4-6</td>
</tr>
<tr>
<td>F3 - Math &amp; Quantitative Reasoning</td>
<td>3-4</td>
</tr>
<tr>
<td>F4 - Society &amp; Connections</td>
<td>3</td>
</tr>
<tr>
<td>F5 - Human Inquiry &amp; the Past</td>
<td>3</td>
</tr>
<tr>
<td>F6 - The Arts &amp; Creativity</td>
<td>3</td>
</tr>
<tr>
<td>F7 - Global Studies &amp; Diversity</td>
<td>3</td>
</tr>
<tr>
<td>F8 - Focus (may be satisfied by completion of a minor, double major, or dual degree)</td>
<td>9</td>
</tr>
<tr>
<td>Total Hours</td>
<td>31-37</td>
</tr>
</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

GEF Requirements (5)

ENGR 191 First-Year Seminar 1
ENGL 101 & ENGL 102 Introduction to Composition and Rhetoric and Composition, Rhetoric, and Research (GEF 1) 6
MATH 155 Calculus 1 (GEF 3) 4
MATH 156 Calculus 2 (GEF 8) 4
MATH 251 Multivariable Calculus 4
MATH 261 Elementary Differential Equations 4
BIOL 115 Principles of Biology 4
& BIOL 116 and Principles of Biology Laboratory (GEF 8)
PHYS 111 General Physics (GEF 8) 4
PHYS 112 General Physics 4
CHEM 115 Fundamentals of Chemistry 4
& 115L and Fundamentals of Chemistry 1 - Laboratory (GEF 2)
ENGR 101 Engineering Problem Solving 1 2
ENGR 102 Engineering Problem-Solving 2 3

Minimum 2.0 GPA is required in all of the following courses:

CPE 271 Introduction to Digital Logic Design 3
EE 221 Introduction to Electrical Engineering 4
& EE 222 and Introduction to Electrical Engineering Laboratory
EE 223 Electrical Circuits 4
& EE 224 and Electrical Circuits Laboratory
Elective 2

Total Hours 60

Suggested Plan of Study

First Year

Fall Hours Spring Hours
ENGR 101 2 ENGR 102 3
BIOL 115 4 MATH 156 (GEF 8) 4
& BIOL 116 (GEF 8)
MATH 155 (GEF 3) 4 PHYS 111 (GEF 8) 4
CHEM 115 4 ENGL 101 (GEF 1) 3
& 115L (GEF 2)
ENGR 191 1 Elective 2

15 16

Second Year

Fall Hours Spring Hours
MATH 251 4 MATH 261 4
PHYS 112 4 EE 223 4
& EE 224
CPE 271 3 ENGL 102 (GEF 1) 3
EE 221 4 GEF Elective (GEF 5) 3
& EE 222

15 14

Total credit hours: 60

Major Learning Outcomes

BIOMETRIC SYSTEMS

Upon completion of the associate degree in biometric systems, 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 biometric systems.