Electrical Engineering

Degree Offered

- Associate of Arts

Nature of Program

Electrical engineering is the largest branch of engineering. Electrical engineers design, develop, test, and oversee the manufacture and maintenance of equipment that uses electricity. Electrical equipment includes power generating and transmission equipment, motors, machinery controls, instrumentation in cars and aircraft, robots, computers, communications equipment, and health-care equipment.

Electrical engineers study and apply the physics and mathematics of electricity, electronics, and electromagnetism to both large and small scale systems to process information and transmit energy. To do this, electrical engineers design computers, electronic devices, communication systems, test equipment, electric power networks, and improve systems through problem solving techniques

The associate degree program provides a foundation in the physics and mathematics of electricity, electronics, and electromagnetism that can be applied in a bachelor program. The curriculum is designed to transfer into the bachelor program in electrical 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

Electrical engineers predominately work in firms that manufacture computers, communication equipment, electrical and electronic equipment, business machines, professional and scientific equipment, and aircraft and aircraft parts. Electrical engineers are often employed by oil and gas, movie and video, and mining and mining support industries.

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

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 Requirements (5, 6, or 7)		3
ENGL 101 & ENGL 102	Introduction to Composition and Rhetoric and Composition, Rhetoric, and Research (GEF 1)	6
MATH 155	Calculus 1 (GEF 3 - minimum grade of C-)	4
MATH 156	Calculus 2 (GEF 8- minimum grade of C-)	4
MATH 251	Multivariable Calculus (minimum grade of C-)	4
MATH 261	Elementary Differential Equations	4
CHEM 115	Fundamentals of Chemistry (GEF 2)	4
PHYS 111	General Physics (GEF 8)	4
PHYS 112	General Physics (GEF 8)	4
ECON 201	Principles of Microeconomics (GEF 5)	3
ENGR 101	Engineering Problem Solving 1	2
ENGR 102	Engineering Problem-Solving 2	3
MAE 241	Statics	3
ENGR 191	First-Year Seminar	1
A minimum GPA of 2.0 is required in the following courses:		
CPE 271	Introduction to Digital Logic Design	3
EE 221 & EE 222	Introduction to Electrical Engineering and Introduction to Electrical Engineering Laboratory	4
EE 223 & EE 224	Electrical Circuits and Electrical Circuits Laboratory	4
Total Hours		60

Suggested Plan of Study

First Year

Fall	**Hours**	**Spring**	**Hours**
ENGL 101 (GEF 1)	3	ENGR 102	3
ENGR 101	2	MATH 156 (GEF 8)	4
MATH 155 (GEF 3)	4	PHYS 111 (GEF 8)	4
CHEM 115 (GEF 2)	4	ECON 201 (GEF 4)	3
ENGR 191	1		
	14		14

Second Year

Fall	**Hours**	**Spring**	**Hours**
MATH 251	4	ENGL 102 (GEF 1)	3
PHYS 112 (GEF 8)	4	MATH 261	4
CPE 271	3	EE 223 & EE 224	4
EE 221 & EE 222	4	GEF Elective (GEF 5, 6, or 7)	3
MAE 241	3		
	18		14

Total credit hours: 60

Major Learning Outcomes

ELECTRICAL ENGINEERING

Upon completion of the associates in electrical 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 electrical engineering.