APPLIED ENGINEERING AND ENERGY SYSTEMS - ASSOCIATE IN SCIENCE

AEES

The Applied Engineering and Energy Systems (AEES) Associate of Science degree equips students with the technical knowledge and hands-on skills required to thrive in a variety of engineering technology, and energy-related careers. This interdisciplinary program integrates electrical and mechanical engineering principles with energy management strategies to address current challenges in electromechanical systems, automation, and energy efficiency. Students gain a strong foundation in topics such as DC/AC circuits, electromechanical systems, digital systems, programmable logic controllers (PLCs), and energy auditing and management strategies, preparing them for roles in industry.

This is a terminal associate degree program designed to prepare students to become engineering and energy technicians. It is not intended for transfer to a four-year engineering bachelor's degree program.

Program Learning Outcomes

Upon completion of this program, a student will be able to:

1. Demonstrate proficiency in analyzing and solving electrical and electronic circuits.
2. Apply principles of digital systems and programmable logic controllers (PLCs) to develop and analyze control systems solutions.
3. Utilize mathematical and scientific principles to solve engineering problems related to electromechanical, automation, and energy systems.
4. Design, construct, and troubleshoot electromechanical systems using appropriate tools and techniques.
5. Effectively communicate technical information through written reports, oral presentations, and data visualization
6. Demonstrate the ability to work collaboratively in team environments.
7. Apply safety, sustainability, and ethical considerations in industrial practice.
8. Perform an energy audit, including data collection, analysis, and interpretation, in order to generate recommendations to increase energy efficiency.

Requirements

Code	Title	Hours
General Education Requirements		
ENGL 1010	Composition I (or ENGL 1010A) HUMN; Written Communication; Information Literacy	3
Humanities Elective (https://catalog.ccri.edu/academic-information/general-education/course-attributes/#humngened/) HUMN		3
MATH 1179	Applied Technical Mathematics I MSCI; Scientific Reasoning; Quantitative Literacy	3
MATH 1181	Applied Technical Mathematics II MSCI; Scientific Reasoning; Quantitative Literacy	3
PHYS 1000	Physics of Everyday Life MSCI; Critical Thinking; Quantitative Literacy	4
Social Science Elective (https://catalog.ccri.edu/academic-information/general-education/course-attributes/#sscigened/) SSCI		6
Subtotal		22
Core Requirements		
AEES 1010	Introduction to DC & AC Electrical Circuits	3
AEES 1020	Introduction to Electromechanical Systems I	3
AEES 1030	Introduction to Digital Systems	3
AEES 1040	Electronic Devices & Circuits	3
AEES 1050	Introduction to Energy Generation & Management	4
AEES 1060	Robotics and Control	3
AEES 1070	Mechanical Systems	3
AEES 1080	OSHA General Industry Safety	1
AEES 2000	Introduction to Electromechanical Systems II	3
AEES 2010	Applied Engineering Mechanics	3
AEES 2020	Automation Systems	3
AEES 2030	HVAC Systems	3
AEES 2500	Capstone Energy Audit	3
ENGR 1020	Introduction to Engineering & Technology	3
ENGR 1030	Engineering Graphics	3
INST 1010	Introduction to Instrumentation Technology	3
Total Hours		**69**

Recommended Course Sequence

Course	Title	Hours
Year 1		
Semester 1		
AEES 1010	Introduction to DC & AC Electrical Circuits	3
ENGL 1010	Composition I	3
ENGR 1020	Introduction to Engineering & Technology	3
MATH 1179	Applied Technical Mathematics I	3
PHYS 1000	Physics of Everyday Life	4
	Hours	**16**
Semester 2		
AEES 1020	Introduction to Electromechanical Systems I	3
AEES 1030	Introduction to Digital Systems	3
AEES 1040	Electronic Devices & Circuits	3
ENGR 1030	Engineering Graphics	3
MATH 1181	Applied Technical Mathematics II	3
	Hours	**15**
Summer Session		
Humanities Elective (https://catalog.ccri.edu/academic-information/general-education/course-attributes/#humngened/)		3
	Hours	**3**
Year 2		
Semester 1		
AEES 1050	Introduction to Energy Generation & Management	4
AEES 1060	Robotics and Control	3
AEES 1070	Mechanical Systems	3
AEES 1080	OSHA General Industry Safety	1

AEES 2000	Introduction to Electromechanical Systems II	3
INST 1010	Introduction to Instrumentation Technology	3
	Hours	**17**
Semester 2		
AEES 2010	Applied Engineering Mechanics	3
AEES 2020	Automation Systems	3
AEES 2030	HVAC Systems	3
AEES 2500	Capstone Energy Audit	3
Social Science Elective (https://catalog.ccri.edu/academic-information/general-education/course-attributes/#sscigened/)		3
	Hours	**15**
Summer Session		
Social Science Elective (https://catalog.ccri.edu/academic-information/general-education/course-attributes/#sscigened/)		3
	Hours	**3**
	Total Hours	**69**