Industrial Controls, Automation, and Robotics Technology - AAS

Keokuk Campus

The Industrial Automation, Controls, and Robotics Technology program provides students with technical skills in maintaining and troubleshooting electrical and mechanical systems used in the industry. Mechanical and electrical theory are covered throughout the program, including how to troubleshoot and repair industrial systems. Instruction is delivered in an open lab format designed to be flexible and accommodating. This program is designed to prepare technicians to troubleshoot, repair, and service computerized control systems and robotic devices in manufacturing environments. Students will gain knowledge and apply skills in advanced electrical, electronic, and robotics systems. Students will apply networking skills, integral to working with automated equipment, encompassing robotic components, sensors, controllers and computers to support autonomous work.

The Basic Electrical Maintenance Certificate is awarded after successful completion of first semester courses.

The Electrical Maintenance Technology Diploma is awarded after successful completion of the first and second semesters.

Please view the technical standards for this course.

This material is based on work supported by the National Science Foundation under Grant No 2300914. Any opinions, findings and conclusions or recommendations expressed in this material are those of the author(s) and do not necessarily reflect the views of the National Science Foundation.

ATE Project Title: Implementing Career Pathway Strategies and Transforming Industrial Controls, Automation, and Robotics Technology Program to Competency-Based Education to Facilitate Student Success

In 2023, Southeastern Community College (SCC) was awarded a three-year, $649,499 ATE Grant from the National Science Foundation to re-design the Industrial Controls, Automation, and Robotics Technology (ICART) program curriculum from a traditional modality to an approved Competency-Based Education (CBE) modality. This will involve selecting/articulating industry-recognized credentials to serve as the foundation for program competencies and mapping them to each technical program course. Assessments will be developed to measure student competency attainment, as well as a flexible learning lab to allow students to collaboratively problem-solve and troubleshoot various simulations.

Key initiatives that will be completed throughout the three-year grant include developing and implementing an ICART Career Pathway, develop an ICART Career Academy for students in grades 9-12 and a Teacher Academy and Externships that will provide high school educators with the opportunity to gain hands-on exposure to careers within the manufacturing sector related to the ICART program. Other activities will be directly related to outreach and recruitment for the ICART program, including an ICART Day for high school students, an Internship Fair to connect students to local employers, and an overall comprehensive outreach and recruitment plan developed in collaboration with SCC's Admissions and Marketing departments.

The ATE project will increase the number of qualified individuals who enter the workforce and are connected to high-wage, in-demand positions that are critical to the future support of the manufacturing base in southeast Iowa. It will also improve the knowledge base for similar manufacturing engineering programs through NSF ATE sharing.

Currently, SCC is in Year Two of the ATE Grant and would like to recognize the National Science Foundation for allowing the college the opportunity to support its community and industry needs.

To view the ATE Project Summary, click here.

To view Year One's Annual Report, click here.

Instructor and Staff

Cristien Balmer
Instructor – Industrial Controls, Automation and Robotics Technology
(319) 313-1937
cbalmer@scciowa.edu

Industrial Controls, Automation, and Robotics Technology - AAS

Keokuk Campus, and select courses online

Program Requirements

Fall I		Credit
ELE-116	Blueprint Reading	1
ELE-310	Industrial Electricity	2
ELT-295	AC/DC Fundamentals	2
IND-212	Safety Practices	2
MFG-155	Industrial Machine Programming	3
ELE-195	Motor Controls	3
MAT-702	Introduction to Math Applications	3
Semester Total		16

Spring I		Credit
EGT-174	Fluid Power	2
ELT-132	Motor Drives	1
ELT-263	Programmable Logic Controllers I	2
EGT-175	Fluid Power Control	2
IND-252	Powertrain and Pump Operation	3
EGT-147	Hydraulic Power Systems and Troubleshooting	1
Take 1 of 2 courses:		
PSY-102	Human and Work Relations	3
SOC-114	Conflict Resolution in the Workplace	3
Semester Total		14

Summer		Credit
SPC-112	Public Speaking	3
HUM-287	Leadership Development Studies	3
Semester Total		6

Fall 2		Credit
ELT-264	Programmable Logic Controllers II	2
ELT-176	Instrumentation	3
ATR-118	Automation Systems	3
ELE-218	Motion Control	2
ENG-110	Writing for the Workplace	3
Semester Total		13

Spring 2		Credit
ELE-219	Supervisory Control and Data Acquisition	3
ELT-266	Safety Circuits and Devices	2
ATR-135	Advanced Automation and Robotics	3
ELE-127	Troubleshooting	1
ELT-265	PLC and System Integration	5
Semester Total		14

Program Total....63