

AUTOMATION AND INSTRUMENTATION TECHNOLOGIES, A.A.S.

Entry Time

Fall

Award

Associate of Applied Science degree
2 years (5 terms including 1 summer)

The Automation and Instrumentation Technologies program prepares students for a broad range of careers in the industrial automation and process control sector of industry using industry-guided curriculum combined with practical hands-on labs.

First year studies focus on concepts and technologies that include, but are not limited to, basic electrical theory, motors and transformers, industrial controls and wiring, electrical print design and reading, industrial maintenance concepts (mechanical and electrical), applied physics and mathematics.

During the second year, students will gain experience using a variety of solutions including, but not limited to, industrial controls (electric, hydraulic, pneumatic), programmable logic controllers (PLCs), programmable automation controllers (PACs), process and instrumentation technologies, solid-state motor control technologies, automated conveying and material handling systems, inspection technologies, electronic operator interfaces (EOIs), motion control (servo and stepper controls), and automated manufacturing solutions.

Graduates of this program will be exposed to and have experience with a broad, yet industry-specific, range of technologies and processes that will ensure they are well-rounded technically and will have the foundational knowledge and versatile skill set necessary to continue to learn and succeed in industry today.

Career Opportunities

- controls technician
- electrical and instrumentation (E & I) technician
- controls engineer
- process technician
- automation technician
- application engineer
- technical salesperson

Degree Requirements

Course	Title	Credit Hours
Term 1		
Fall		
ELE-364	Basic Electrical Circuits	4
ATR-303	Mechanical Power Transmission	4

MAT-232 or MAT-707 <i>and</i> MAT-103	Applied Industrial Math for Technicians or Algebra Mastery 1 <i>and</i> Applied Math for Manufacturing	3
IND-156 or CSC-116	Microcomputers for the Trades or Information Computing	2
	Term Totals:	13
Term 2		
Spring		
Select one of the following:		2
PHY-180	Applied Physics I	
PHY-190	Physics I	
PHY-120	Introductory Physics	
ELT-224	Motors and Transformers	5
ATR-136	Programmable Logic Controllers for Manufacturing	4
ATR-310	Industrial Controls	5
	Term Totals:	16
Term 3		
Summer		
IND-196	Fundamentals of Hydraulic and Pneumatic Systems	5
ATR-316	Instrumentation & Control Devices	2
ATR-319	Process Control I	4
	Term Totals:	11
Term 4		
Fall		
ELE-365	Industrial Wiring	3
ATR-254	PLC Integration	4
ATR-327	Process Control II	4
Communication Course		3
Humanities or History/Culture Course (https://creditcatalog.kirkwood.edu/aas-degree-humanities-requirement/)		3
	Term Totals:	17
Term 5		
Spring		
ATR-323	Mechatronics I	2
ATR-201	Automation and Instrumentation Capstone	4
ATR-105	Industrial Robotics	3
MGT-145 or PSY-111	Human Relations in Management or Introduction to Psychology	3
Communication Course		3
	Term Totals:	15
	Program Totals:	72

Optional Courses

Code	Title	Credit Hours
ATR-450	Computer Integrated Manufacturing	3