

Associate in Applied Science in Robotics

Program Outcomes

Upon completion of this degree, students will be able to install, maintain and repair electrical and electronic equipment such as networked process controls, computer-controlled machinery three-phase motors and variable frequency motor drives, robots, and servos. Students will also gain competency in hydraulics, pneumatics and welding.

Employment Opportunities or Additional Educational Options

This degree combined with experience can assist graduates with employment in today's manufacturing environment. Graduates wanting to transfer to four-year institutions should consult their advisor early as this program is not designed primarily for transferability.

To Learn More About This Program

Contact Larry Holz at 269-687-5651 or lholtz@swmich.edu.

Degree Requirements

To earn this degree, students must have an overall GPA of 2.0 or higher, complete a minimum of 60 credit hours, and fulfill the course requirements of the program listed below. Students are permitted to complete a higher-level math course than shown below. Each general education course, prerequisite course, internship, and capstone course must be completed with a final grade of "C" or better.

General Education Courses

COMMUNICATIONS

Course ID	Course	Credits
ENGL 103 or ENGL 103W	Freshman English II (or with workshop)	3 to 4 credits
SPEE 102	Fundamentals of Public Speaking	3 credits

MATHEMATICS

Course ID	Course	Credits
MATH 127	College Algebra	4 credits

Major-specific Required Courses

Course ID	Course	Credits
EDUC 120	Educational Exploration and Planning	1 credit
CADD 101	Introduction to CAD/Auto CAD	4 credits
ELEC 118	Fundamentals of Electricity 1	4 credits
ELEC 119	Fundamentals of Electricity 2	4 credits
ELEC 131	Digital Electronics	3 credits
ELEC 140	Motors and Motor Control Circuits	3 credits
ELEC 208	Electronic Communications	3 credits
ELEC 212	Microprocessors	4 credits
ELEC 218	Process Control Instrumentation 1	3 credits
ELEC 233	Programmable Logic Controllers	2 credits
ELEC 234	Advanced PLC and Motion Control	2 credits
ELEC 255	Internship	2 credits
INTE 126	Intro to Manufacturing Systems	3 credits
INTE 159	Hydraulics and Pneumatics	3 credits
INTE 227	Industrial Robotics	2 credits
INTE 229	Industrial Robotics Vision	1 credit
INTE 245	Robot Integration and Automation	2 credits
WELD 159	Basic Welding	2 credits

**Total Program Credits: 58
(Need 60 credits to graduate)**

Additional Notes About the A.A.S. in Robotics Program

- A prerequisite course may be needed prior to enrollment in some courses within this program. Specific prerequisite requirements are listed in the Course Description section in the Course Catalog. A summary of the prerequisites are listed below in the Example Course Sequence.
- This program as outlined does not meet MTA requirements. A student would need two different science courses (one with a lab component), two different social science courses, and two different humanities courses. See advisor for specific details if the MTA is important to you.
- Some students may need to take other credits to earn the minimum of 60 credits needed for a degree.
- Courses taken out of sequence may delay a student's ability to complete the program in a timely manner.
- Each student should submit a graduation application at least one full semester before he/she plans to graduate.
- This program is subject to change. Students should consult with their advisor for program updates.

Example Course Sequence

The following is a sample of a semester-by-semester approach to completing this program.

FIRST SEMESTER

Courses	Credits	Prerequisites (Minimum Grade of "C" Required)
EDUC 120 Educational Exploration and Planning	1 credit	ENGL 115 or test score (concurrent enrollment allowed)
ELEC 118 Fundamentals of Electricity 1	4 credits	MATH 101 or test score (concurrent enrolled allowed); ENGL 115 or test score (concurrent enrollment allowed); concurrent enrollment in ELEC 119 required
ELEC 119 Fundamentals of Electricity 2	4 credits	MATH 101 or test score (concurrent enrolled allowed); ELEC 118 (concurrent enrollment allowed); ENGL 115 or test score (concurrent enrollment allowed)
MATH 101 Intro Algebra (if needed)	4 credits	MATH 098 or test score
ELEC 140 Motors and Motor Control Circuits	3 credits	ELEC 118 and ELEC 119 (concurrent enrollment allowed); MATH 101 or test score (concurrent enrollment allowed); ENGL 115 or test score (concurrent enrollment allowed)

SECOND SEMESTER

Courses	Credits	Prerequisites (Minimum Grade of "C" Required)
ELEC 131 Digital Electronics	3 credits	MATH 101 or test score; ELEC 118 and ELEC 119; ENGL 115 or test score (concurrent enrollment allowed)
ELEC 218 Process Control Instrumentation 1	3 credits	ELEC 118; ELEC 119; MATH 101 or test score; ENGL 115 or test score (concurrent enrollment allowed)
ELEC 233 Programmable Logic Controllers	2 credits	MATH 101 or test score; ELEC 118 and ELEC 119; ENGL 115 or test score (concurrent enrollment allowed)
INTE 159 Hydraulics and Pneumatics	3 credits	MATH 101 or test score (concurrent enrollment allowed); ENGL 115 or test score (concurrent enrollment allowed)
INTE 227 Industrial Robotics	2 credits	ENGL 115 or test score (concurrent enrollment allowed)
WELD 159 Basic Welding	2 credits	MATH 098 or test score (concurrent enrollment allowed)

THIRD SEMESTER

Courses	Credits	Prerequisites (Minimum Grade of "C" Required)
CADD 101 Intro to CAD/Auto CAD	4 credits	None
ELEC 234 Adv PLC and Motion Control	2 credits	ELEC 233; MATH 127 or test score (concurrent enrollment allowed)
INTE 126 Intro to Manufacturing Systems	3 credits	ENGL 115 or test score (concurrent enrollment allowed)
INTE 229 Industrial Robotics Vision	1 credit	INTE 227
MATH 127 College Algebra	4 credits	MATH 101 or test score
SPEE 102 Fund. of Public Speaking	3 credits	None

FOURTH SEMESTER

Courses	Credits	Prerequisites (Minimum Grade of "C" Required)
ELEC 208 Electronic Communications	3 credits	ELEC 119; MATH 127 or test score; ENGL 115 or test score (concurrent enrollment allowed in ENGL 115)
ELEC 212 Microprocessors	4 credits	ELEC 131; MATH 127 or test score; ENGL 115 or test score (concurrent enrollment allowed in ENGL 115)
ENGL 103 or ENGL 103W Freshman English 2 (or with workshop)	3 to 4 credits	ENGL 115 or test score (concurrent enrollment allowed)
INTE 245 Robot Integration and Automation	2 credits	INTE 159; INTE 227; ELEC 233
ELEC 255 Internship	2 credits	Completion of Robotics Certificate; recommendation of program advisor

