

# Mechatronics & Robotics Systems

## Associate in Applied Science Degree

### Why Mechatronics & Robotics Systems?

Mechatronics is an interdisciplinary field involving mechanical, electronic, computer, robotic, and control systems. In this program, students will gain the technical knowledge and skills needed to install, repair and maintain electromechanical, fluid power, process control or robotic systems. Students will have the opportunity to do hands-on learning in a grant-funded equipment lab where they will work on models of a multi-stage assembly line. Eligible students can also complete a Co-op or Internship in the area of Mechatronics and Robotics Systems to gain real-world experience that can benefit them in future careers.

### Why Bay College?

The [Mechatronics program](#) at Bay College provides students with the basic principles and skills to install, maintain, troubleshoot, and repair mechatronic systems. Courses taken will cover the fundamentals of robotics, fluid power, basic machine tool operation, electrical motors, motor control systems and programmable logic controllers. Students will also work on models of a multi-stage assembly line, including building to print, configuring the hardware, and programming the operation.

### Beyond Bay College

Students interested in transferring to a four-year institution to obtain a bachelor's degree or higher may find opportunities in the following areas of study:

- **Electrical Engineering Technician**
- **Electronics Engineering Technician**
- **Robotics Technician**
- **Industrial Engineering Technologist**

### Career Opportunities

Graduates of the Mechatronics and Robotics Systems program will be prepared for employment in a wide variety of jobs in a steadily growing field. Career options can include:

- **Industrial Maintenance Technician**
- **Instrumentation Technician**
- **Process Control Technician**
- **SCADA Technician**
- **PLC Technician**

### Contact

#### Bay College

2001 N Lincoln Rd  
Escanaba, MI 49829

#### Bay College West Campus

2801 N US 2  
Iron Mountain, MI 49801

#### Office of Admissions

906-217-4010  
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#### Mark Highum

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[baycollege.edu](http://baycollege.edu)

# Mechatronics and Robotics Systems, AAS

Award Granted Upon Completion: Associate in Applied Science in Mechatronics and Robotic Systems  
Credits/Contacts Required: 60/60

Major code: 03/338  
CIP Code: 150403

## General Education Requirements (Min. 15 Credits)

Course #	Course Name	Cr
ENGL 101	Rhetoric & Composition	3
BUSN 177	Mathematics of Business	3 or
MATH 105	Intermediate Algebra	3 or
MATH 107	Liberal Arts Mathematics	3
XXXX xxx	Social Behavioral Science\Humanities	3
XXXX xxx	General Education Electives	5-6

## Program Requirements (Min. 32 Credits)

Course #	Course Name	Cr
ELEC 130	Circuit Fundamentals I	4
ELEC 145	Basic Process Control	4
ELEC 180	Electrical Machinery & Controls	4
ELEC 240	Real Time Robotics Systems	4
ELEC 245	Robotic Vision Systems	4
ELEC 285	Fluid Power	4
ELEC 290	Introduction to Programmable Logic Controllers	4
ELEC 295	Mechatronics	4
XXXX xxx	Approved Electives	13

## Approved Electives (13 Credits)

Course #	Course Name	Cr
CNSS 130	Introduction to Networks	4
CNSS 150	A plus Computer Maintenance	4
CNSS 220	Network Design	4
ELEC 135	Circuit Fundamentals II	4
ELEC 160	Electronics I	4
ELEC 170	Digital I Fundamentals	4
ELEC 272	Mechatronics Co-op Internship	1-8
TECH 100	Basic Machine Tool Operation	4
TECH 101	Blueprint Reading	2
TECH 105	Materials of Industry	4
WELD 110	Introduction to Oxygen-Fuel Welding & Cutting	3
WELD 120	Arc Welding	4
XXXX xxx	Any General Education Course	3

## Note(s)

All Internships and Co-ops may require that the student pass a criminal background check.

## Suggested Sequences Per Semester

### First Semester

Course #	Course Name	Cr/Ct
ENGL 101	Rhetoric & Composition	3
ELEC 130	Circuit Fundamentals I	4
ELEC 285	Fluid Power	4
XXXX xxx	Approved Electives	4/4

**First Semester Total - Credit(s): 15 | Contacts: 15**

### Second Semester

Course #	Course Name	Cr/Ct
XXXX xxx	Approved Electives	4/4
ELEC 145	Basic Process Control	4
ELEC 180	Electrical Machinery & Controls	4
BUSN 177	Mathematics of Business	3 or
MATH 105	Intermediate Algebra	3 or
MATH 107	Liberal Arts Mathematics	3

**Second Semester Total - Credit(s): 15-16 | Contacts: 15-16**

### Third Semester

Course #	Course Name	Cr/Ct
ELEC 240	Real Time Robotics Systems	4
ELEC 290	Introduction to Programmable Logic Controllers	4
XXXX xxx	Social Behavioral Science or Humanities	3/3
XXXX xxx	General Education Elective	3/3

**Third Semester Total - Credit(s): 14 | Contacts: 14**

### Fourth Semester

Course #	Course Name	Cr/Ct
ELEC 245	Robotic Vision Systems	4
ELEC 295	Mechatronics	4
XXXX xxx	Approved Elective	5/5
XXXX xxx	General Education Elective	3/3

**Fourth Semester Total - Credit(s): 16 | Contacts: 16**