

MECHATRONICS - DEGREE

Associate of Applied Science Degree Program

Faculty Advisers

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Do you like mechanics, robotics, or production equipment? Do you like solving problems? Do you enjoy building or technical projects? Can you work well as a member of a team? Mechatronics might be for you.

Mechatronics deals with robotics, control systems, and electro-mechanical systems. A mechatronics engineer uses principles of these complex systems to design, maintain and/or repair a simpler, more cost effective, and reliable system.

Students who complete this program will be prepared to work in trades that use industrial robots, programmable logic controllers (PLCs), and other powered systems. Students will also learn about statistical process control (SPC), safety, manufacturing methods, and professionalism in the workplace.

All MEC courses must be completed with a "C" grade or better and must be completed within 5 years in order to be awarded the degree.

Program Outcomes

At the completion of this program, students should be able to:

- Demonstrate appropriate industrial safety practices in a manufacturing environment
- Participate effectively in a workplace environment
- Apply a systematic approach to troubleshooting problems
- Read and interpret industrial schematics
- Demonstrate intermediate level knowledge of hydraulic, pneumatic, mechanical, and electrical systems
- Demonstrate basic knowledge in automation control systems
- Operate and program basic industrial robots and programmable logic controllers
- Describe and perform basic welding and machining processes on ferrous metals
- Use hand and shop tools effectively to complete common maintenance tasks
- Identify and use appropriate test equipment

General education courses (such as math, writing, health, etc.) can be taken during any term, or before starting the program.

First Quarter

| Fall | | Credits |
|----------------|--------------------------------------|-----------|
| MEC101 | Introduction to Mechatronics | 1 |
| MEC110 | Introduction to Manual Machine Tools | 3 |
| MEC112 | Measurement Tools | 2 |
| MEC121 | Mechanical Drives I | 4 |
| MEC131 | AC/DC Electrical Systems | 3 |
| Credits | | 13 |

Second Quarter

| Winter | | |
|--------|----------------------|---|
| MEC122 | Mechanical Drives II | 4 |

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|----------------|------------------------|-----------|
| MEC132 | Electric Motors | 4 |
| MEC134 | Electrical Fabrication | 2 |
| MEC141 | Pneumatics I | 3 |
| Credits | | 13 |

Third Quarter

Spring

| | | |
|---|--|--------------|
| MEC123 | Mechanical Drives III | 4 |
| MEC142 | Pneumatics II | 2 |
| MEC231 | Introduction to Programmable Logic Controllers | 4 |
| MEC241 | Introduction to Hydraulics | 3 |
| Human Relations requirement (https://catalog.mhcc.edu/degree-certificate-requirements/aas/#human) | | 3-4 |
| Credits | | 16-17 |

Fourth Quarter

Summer

| | | |
|---|--|--------------|
| MTH065 | Beginning Algebra II ★ (or higher, excluding MTH098) | 4 |
| Health and Physical Education requirement (https://catalog.mhcc.edu/degree-certificate-requirements/aas/#health) | | 3 |
| WR101 or WR121Z | Workplace Communications I ★ or Composition I ★ | 3-4 |
| Credits | | 10-11 |

Fifth Quarter

Fall

| | | |
|---------------------|---|-----------|
| MEC133 | Motor Controls | 5 |
| MEC160 or WLD116 | Introduction to Maintenance Welding or General Welding I | 2 |
| MEC232 | Intermediate Programmable Logic Controllers | 5 |
| MEC242 | Advanced Hydraulics | 4 |
| Credits | | 16 |

Sixth Quarter

Winter

| | | |
|----------------|----------------------|-----------|
| MEC113 | Industrial Safety | 2 |
| MEC243 | Fluid Power Controls | 4 |
| MEC251 | Robotics I | 3 |
| MEC270 | Process Control | 4 |
| Credits | | 13 |

Seventh Quarter

Spring

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|--|---|-----------|
| MEC250 | Manufacturing Operations | 1 |
| MEC252 | Robotics II - Vision Systems | 3 |
| MEC290 | Mechatronics Capstone I | 3 |
| MEC291 | Mechatronics Capstone II | 3 |
| CH151 or CIS151 or ENGR248 or ET221 | Basic Chemistry or Introduction to Networks or Engineering Graphics: Solidworks or Statics | 4 |
| Credits | | 14 |

Total Credits 95-97