

MECHATRONICS



Mechatronics is a new and emerging career path. The Mechatronics Certificate Program trains technicians in multi-craft skills and applies them within a manufacturing environment.



MECHATRONICS CERTIFICATE PROGRAM

Degree: Certificate
HEGIS Code: 5311
Curriculum Code: 2519.MEC
Engineering & Technologies Division

Pre-Admission Recommendations:
Mechanical Aptitude
Career Opportunities/Further Education: Industrial Machinery Mechanics, Machinery Maintenance Workers, Automation Repair Technician, Millwrights

For gainful employment information, please visit this link:
<https://elinks.ecc.edu/gainfulemployment/mechatronics/Gedt.html>

Program Description

Mechatronics is a new and emerging career that trains technicians with "multi-craft" skills and applies them within a manufacturing environment. Skills taught include electrical, mechanical, hydraulics, pneumatics, robotics, and computer technologies. Mechatronics Technicians who support Advanced Manufacturing will usually assist the design, development and engineering staff, as well as work closely with others to install, maintain, modify and repair mechatronic systems, equipment and component parts.

The goal of the Mechatronics Certificate Program at SUNY Erie is to prepare students for employment as

production technicians in manufacturing locations throughout the Buffalo-Niagara Region. It is a two-semester program comprising 32 credit hours of training and development in electrical/pneumatic/hydraulic motors, controls, and actuators; mechanical drives and controls; blueprint/schematic interpretation; robotics; and other competencies necessary for employment in the field of Advanced Manufacturing. This certificate program leads to additional pathways for achieving degrees in Mechanical Engineering, Electrical Engineering, and Industrial Technology.



Program Competencies

Upon completion of the Mechatronics Certificate Program, the student will be able to:

- identify common safety and personal protective equipment as well as safe job practices associated with electrical, mechanical, hydraulic, and pneumatic systems;
- demonstrate an understanding of the specific applications of various electrical components within a given system;
- recognize and identify electrical components from diagrams, physical representations, or other symbolic information;
- read and interpret pneumatic and hydraulic diagrams;
- demonstrate proficiency in the assembly and troubleshooting of basic mechatronic systems;
- demonstrate proficiency in programming Programmable Logic Controllers to perform basic relay, timer and counter instructions and perform basic troubleshooting on electro-mechanical and PLC systems; and
- demonstrate the correct use of hand tools and electrical diagnostic equipment including digital multi-meters, oscilloscopes, and related instruments.

CURRICULUM

Total Degree Credits: 32 credits

Fall Semester

IE 100 Industrial Electricity (3 cr) or
CP 114 Electrical Circuits (4 cr)
IE 101 Lab for IE 100 (1 cr) or
CP 115 Lab for CP 114 (1 cr)
IE 160 Programmable Logic Controllers (3 cr)
DF 157 Fundamentals of Mechatronic Systems (3 cr)
IT 115 Technical Communications and Graphics (2 cr)
MT 121 Technical Mathematics I (4 cr)

Spring Semester

IE 140 AC/DC Machines (3 cr)
IE 161 Industrial Robotics & Automation (3 cr)
IT 235 Advanced Manufacturing Processes (4 cr)
CP 275 Fluid Power (3 cr)
CP 295 Mechanical Power Transmission (3 cr)

Estimated annual program cost is \$6,176

*Based on 2017-18 rates, subject to change



NORTHLAND WORKFORCE TRAINING CENTER

1581 Bailey Ave., Buffalo, NY 14212

(Permanent location opening in Fall 2018 at
683 Northland Ave., Buffalo)



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