

Mechatronics Engineering Technology

The Mechatronics Engineering Technology curriculum prepares individuals for employment as technicians in engineering fields requiring electrical, mechanical, and computer skills. Mechatronics Engineering technicians assist in troubleshooting, complex engineering repairs, testing, prototype builds, process and design improvements, in manufacturing and automated supply chain systems and processes. Emphasis is placed on the integration of theory and hands-on application of engineering principles.

In addition to coursework in engineering fundamentals, basic manufacturing, electrical electronics, computers, mathematics, and physics. Students develop critical thinking, planning, problem-solving, oral and written communications.

Graduates of the curriculum will find employment opportunities in industrial automated systems maintenance and equipment manufacturing including assembly, testing, start-up, troubleshooting, repair, upgrades of machinery and the associated control system. Graduates also find employment in automated Supply Chain facilities. Graduates are eligible to sit for various exams for nationally recognized PMMI Mechatronics Certifications. Also Siemens Mechatronics Level 1, Siemens Mechatronics Level 2.

For more details about Central Piedmont Mechatronics visit the Mechatronics Engineering Technology website.

For specific information about potential positions and wages in mechatronics engineering technology employment, visit the Central Piedmont Career Coach website.

Mechatronics Engineering Technology (A40350)

Degree Awarded

The Associate in Applied Science Degree-Mechatronics Engineering Technology is awarded by the College upon completing this program.

Admissions

- A high school diploma or equivalent is required. High school students preparing for an engineering technology program should complete algebra, geometry, and advanced mathematics courses. Skills and proficiencies should be developed in writing, computer literacy, and science.
- Placement tests in English and mathematics determine the entry-level courses that match individual needs. Developmental Studies English and mathematics courses are available for students to build basic skills and knowledge.
- A counseling/orientation appointment follows placement testing.
- Many courses have prerequisites or co-requisites; check the Courses section for details.

Notes

The Mechatronics Engineering Technology curriculum at Central Piedmont provides a basic background in mechanical, electrical and computer skills and, depending on the track, specialized instruction in each of these areas. Topics include CAD, basic computer skills, safety,

automation, programmable logic controllers, instrumentation, hydraulics and pneumatics, mechanical drives, motors and controls, and basic electricity. The latest equipment is used to provide skills in these areas.

It is recommended students also sign up for the Electrical Engineering Technology Certificate Specialization in Automation Control (C40180-C6), a certificate which requires no extra courses to receive.

Completion of the program requires that students use college-level algebra, trigonometry and physics in the application of scientific principles to technical problems.

Contact Information

The Mechatronics Engineering Technology Program is in the Engineering Technologies Division. For additional information, visit the Mechatronics Engineering Technology website or call the Program Chair at 704.330.6545.

General Education Requirements

ENG 111	Writing and Inquiry	3.0
COM 110	Introduction to Communication	3.0
ECO 251	Principles of Microeconomics	3.0
Take 1 of the following:		3.0
MAT 121	Algebra/Trigonometry I	
or MAT 171	Precalculus Algebra	
Take 1 of the following:		3.0
ART 111	Art Appreciation	
or ART 114	Art History Survey I	
or ART 115	Art History Survey II	
or DRA 111	Theatre Appreciation	
or HUM 120	Cultural Studies	
or HUM 130	Myth in Human Culture	
or MUS 110	Music Appreciation	
or MUS 112	Introduction to Jazz	
or PHI 215	Philosophical Issues	
or PHI 240	Introduction to Ethics	
or REL 110	World Religions	

Major Requirements

ACA 122	College Transfer Success	1.0
PHY 131	Physics-Mechanics	4.0
or PHY 151	College Physics I	
ISC 112	Industrial Safety	2.0
EGR 125	Applications Software for Tech	2.0
MEC 130	Mechanisms	3.0
MEC 265	Fluid Mechanics	3.0
ELC 131	Circuit Analysis I	4.0
ELC 135	Electrical Machines	3.0
ELC 136	Electrical Machines II	4.0
ATR 112	Introduction to Automation	3.0
ELC 213	Instrumentation	4.0
ELN 260	Programmable Logic Controllers	4.0
PCI 173	Programmable Systems	4.0
or PCI 170	DAQ and Control	
DFT 154	Introduction to Solid Modeling	3.0
ISC 212	Metrology	2.0

MEC 180	Engineering Materials	3.0
MEC 210	Applied Mechanics	3.0
Take 2 credits from the following:		2.0
WBL 111 & WBL 121	Work-Based Learning I and Work-Based Learning II	
WBL 112	Work-Based Learning I	
MEC 161	Manufacturing Processes I	
Total Credits		69

No diplomas are offered in Mechatronics Engineering Technology.

Mechatronics Engineering Technology Certificates (C40350)

- Mechatronics Engineering Technology Certificate Specialization in Mechatronics Engineering Pathway (C40350-C5) (p. 2)
- Mechatronics Engineering Technology Certificate Specialization in Industrial Automation Technician I (C40350-C7) (p. 2)
- Mechatronics Engineering Technology Certificate Specialization in Industrial Automation Technician II (C40350-C8) (p. 2)

Mechatronics Engineering Technology Certificate Specialization in Mechatronics Engineering Technology Pathway (C40350-C5)

This certificate is available to high school students enrolled in Career and College Promise.

Major Requirements

MAT 121	Algebra/Trigonometry I	3.0
EGR 125	Applications Software for Tech	2.0
ISC 112	Industrial Safety	2.0
ELC 131	Circuit Analysis I	4.0
DFT 154	Introduction to Solid Modeling	3.0
Total Credits		14

Mechatronics Engineering Technology Certificate Specialization in Industrial Automation Technician I (C40350-C7)

Major Requirements:

ELC 213	Instrumentation	4.0
ISC 112	Industrial Safety	2.0
ELC 131	Circuit Analysis I	4.0
MEC 111	Machine Processes I	3.0
MEC 130	Mechanisms	3.0
Total Credits		16

Mechatronics Engineering Technology Certificate Specialization in Industrial Automation Technician II (C40350-C8)

Major Requirements

ELC 135	Electrical Machines	3.0
ELN 260	Programmable Logic Controllers	4.0
ELC 136	Electrical Machines II	4.0

PCI 173	Programmable Systems	4.0
Total Credits		15

Mechatronics Engineering Technology Suggested Course Sequence

The following is the suggested plan for when to take each course to complete the Associate in Applied Science degree, based on the program requirements of the 2024-2025 catalog. This is only a recommendation — you may take courses in another order upon consultation with your advisor. This plan is based on you starting with college-level math and English courses, starting your program in the fall, and attending full-time. You can also follow this sequence if you attend part-time. Speak with your academic advisor about the plan and any questions. This program might also offer diplomas or certificates; visit the catalog or contact the program for details. Visit the Academic Advising page for instructions on locating your assigned advisor: <https://www.cpcc.edu/academics/academic-advising>

Term I		Credits
ENG 111	Writing and Inquiry	3.0
MAT 121	Algebra/Trigonometry I	3.0
ELC 131	Circuit Analysis I	4.0
ISC 112	Industrial Safety	2.0
EGR 125	Applications Software for Tech	2.0
ACA 122	College Transfer Success	1.0
Credits		15

Term II		Credits
PHY 131	Physics-Mechanics	4.0
ATR 112	Introduction to Automation	3.0
ELC 135	Electrical Machines	3.0
ISC 212	Metrology	2.0
DFT 154	Introduction to Solid Modeling	3.0

You may have completed program certificate C40350-C5. Confirm eligibility with your academic advisor.

Term III		Credits
ELC 213	Instrumentation	4.0
Humanities/Fine Arts		3.0
COM 110	Introduction to Communication	3.0
Credits		10

Term IV		Credits
ELN 260	Programmable Logic Controllers	4.0
MEC 265	Fluid Mechanics	3.0
MEC 130	Mechanisms	3.0
ELC 136	Electrical Machines II	4.0
Credits		14

Term V		Credits
PCI 173 or PCI 170	Programmable Systems or DAQ and Control	4.0
MEC 210	Applied Mechanics	3.0
MEC 180	Engineering Materials	3.0
MEC 161	Manufacturing Processes I	3.0
ECO 251	Principles of Microeconomics	3.0

You may have completed program certificate C40350-C8. Confirm eligibility with your academic advisor.

Credits		16
Total Credits		70