

MECHATRONICS TECHNOLOGY, A.A.S. - MCT3

Combining electronic, mechanical, robotics and information system technologies, this program provides the graduate with the skill set needed for today's automated manufacturing facilities. These skills will align with current needs of manufacturers as well as align with one or more industrial standards/certifications. Instruction covers hydraulics and pneumatics, robotics and automated controls, programmable controllers, process control and mechanical applications. The student will receive practical hands-on experience and computer simulation on automated assembly line processes.

Requirements

Courses	Course Title	Credit Hours
General Education Courses		
ENG 165 or ENG 101	Professional Communications English Composition I	3
	Mathematical Requirement (https://catalog.ptc.edu/student-handbook/advising-registration/general-education-courses/)	3
	Lab Science/Mathematics (https://catalog.ptc.edu/student-handbook/advising-registration/general-education-courses/)	3
	Elective Humanities/Fine Arts (https://catalog.ptc.edu/student-handbook/advising-registration/general-education-courses/)	3
	Elective Social/Behavioral Sciences (https://catalog.ptc.edu/student-handbook/advising-registration/general-education-courses/)	3
	Subtotal	15
Required Core Subject Areas		
AMT 105	Robotics and Automated Control I	3
EEM 117 or EET 111	AC/DC Circuits I DC Circuits	4
EEM 251 or EET 235	Programmable Controllers Programmable Controllers	3
IMT 131	Hydraulics and Pneumatics	4
IMT 170	Statistical Process Control	3
	Subtotal	17
Other Courses Required for Graduation		
AMT 205	Robotics and Automated Control II	3
COL 103	College Skills	3
EEM 118 or EET 112	AC/DC Circuits II AC Circuits	4
EEM 140	National Electrical Code	3
EEM 151 or EET 231	Motor Controls I Industrial Electronics	4
EEM 162 or EET 233	Introduction to Process Control Control Systems	3-4
EEM 200 or EET 131	Semiconductor Devices Active Devices	4

EEM 231 or EET 145	Digital Circuits I Digital Circuits	3-4
EEM 241 or EET 251	Microprocessor I Microprocessor Fundamentals	3-4
IMT 112	Hand Tool Operations	3
IMT 161	Mechanical Power Applications	4
	Subtotal	37-40
	Total Hours	69-72

Graduation Plan

Fall Start - Greenwood (Day)

Course	Title	Hours
First Year		
Fall Semester		
COL 103	College Skills	3
EEM 117 or EET 111	AC/DC Circuits I or DC Circuits	4
IMT 112	Hand Tool Operations	3
IMT 161	Mechanical Power Applications	4
	Hours	14

Spring Semester

EEM 118 or EET 112	AC/DC Circuits II or AC Circuits	4
EEM 151 or EET 231	Motor Controls I or Industrial Electronics	4
IMT 131	Hydraulics and Pneumatics	4
	Mathematical Requirement (https://catalog.ptc.edu/student-handbook/advising-registration/general-education-courses/)	3
	Hours	15

Summer Semester

ENG 165 or ENG 101	Professional Communications or English Composition I	3
	Elective Humanities/Fine Arts (https://catalog.ptc.edu/student-handbook/advising-registration/general-education-courses/)	3
	Elective Behavioral Science (https://catalog.ptc.edu/student-handbook/advising-registration/general-education-courses/)	3
	Lab Science/Mathematics (https://catalog.ptc.edu/student-handbook/advising-registration/general-education-courses/)	3
	Hours	12

Second Year

Fall Semester

AMT 105	Robotics and Automated Control I	3
EEM 200	Semiconductor Devices	4
EEM 231	Digital Circuits I	3
EEM 251	Programmable Controllers	3
IMT 170	Statistical Process Control	3
	Hours	16

Spring Semester

AMT 205	Robotics and Automated Control II	3
---------	-----------------------------------	---



EEM 140	National Electrical Code	3
EEM 162 or EET 233	Introduction to Process Control or Control Systems	3
EEM 241 or EET 251	Microprocessor I or Microprocessor Fundamentals	3
Hours		12
Total Hours		69

Fall Start - Greenwood (Evening)

Course	Title	Hours
First Year		
Fall Semester		
COL 103	College Skills	3
EEM 117 or EET 111	AC/DC Circuits I or DC Circuits	4
IMT 112	Hand Tool Operations	3
IMT 161	Mechanical Power Applications	4
Hours		14

Spring Semester

EEM 118 or EET 112	AC/DC Circuits II or AC Circuits	4
EEM 151 or EET 231	Motor Controls I or Industrial Electronics	4
IMT 131	Hydraulics and Pneumatics	4
Mathematical Requirement (https://catalog.ptc.edu/student-handbook/advising-registration/general-education-courses/)		3
Hours		15

Summer Semester

AMT 105	Robotics and Automated Control I	3
EEM 200	Semiconductor Devices	4
EEM 231	Digital Circuits I	3
Lab Science/Mathematics (https://catalog.ptc.edu/student-handbook/advising-registration/general-education-courses/)		3
Hours		13

Second Year

Fall Semester

AMT 205	Robotics and Automated Control II	3
EEM 251	Programmable Controllers	3
IMT 170	Statistical Process Control	3
Elective Behavioral Science (https://catalog.ptc.edu/student-handbook/advising-registration/general-education-courses/)		3
Elective Humanities/Fine Arts (https://catalog.ptc.edu/student-handbook/advising-registration/general-education-courses/)		3
Hours		15

Spring Semester

EEM 140	National Electrical Code	3
EEM 162	Introduction to Process Control	3
EEM 241	Microprocessor I	3

ENG 165 or ENG 101	Professional Communications or English Composition I	3
Hours		12
Total Hours		69

Fall Start - Newberry (Day Only)

Course	Title	Hours
First Year		
Fall Semester		
COL 103	College Skills	3
EEM 117	AC/DC Circuits I	4
IMT 112	Hand Tool Operations	3
IMT 161	Mechanical Power Applications	4
Hours		14

Spring Semester

EEM 118	AC/DC Circuits II	4
EEM 151	Motor Controls I	4
IMT 131	Hydraulics and Pneumatics	4
Mathematical Requirement (https://catalog.ptc.edu/student-handbook/advising-registration/general-education-courses/)		3
Hours		15

Summer Semester

AMT 105	Robotics and Automated Control I	3
EEM 200	Semiconductor Devices	4
EEM 231	Digital Circuits I	3
Lab Science/Mathematics (https://catalog.ptc.edu/student-handbook/advising-registration/general-education-courses/)		3
Hours		13

Second Year

Fall Semester

EEM 251	Programmable Controllers	3
AMT 205	Robotics and Automated Control II	3
IMT 170	Statistical Process Control	3
Elective Behavioral Science (https://catalog.ptc.edu/student-handbook/advising-registration/general-education-courses/)		3
Elective Humanities/Fine Arts (https://catalog.ptc.edu/student-handbook/advising-registration/general-education-courses/)		3
Hours		15

Spring Semester

EEM 140	National Electrical Code	3
EEM 162	Introduction to Process Control	3
EEM 241	Microprocessor I	3
ENG 165 or ENG 101	Professional Communications or English Composition I	3
Hours		12
Total Hours		69



Fall Start - LCAM/Laurens (Day Only)

Course	Title	Hours
First Year		
Fall Semester		
COL 103	College Skills	3
EEM 117	AC/DC Circuits I	4
IMT 112	Hand Tool Operations	3
IMT 161	Mechanical Power Applications	4
Hours		14
Spring Semester		
EEM 118	AC/DC Circuits II	4
EEM 151	Motor Controls I	4
IMT 131	Hydraulics and Pneumatics	4
Mathematical Requirement (https://catalog.ptc.edu/student-handbook/advising-registration/general-education-courses/)		3
Hours		15
Summer Semester		
ENG 165 or ENG 101	Professional Communications or English Composition I	3
Elective Behavioral Science (https://catalog.ptc.edu/student-handbook/advising-registration/general-education-courses/)		3
Elective Humanities/Fine Arts (https://catalog.ptc.edu/student-handbook/advising-registration/general-education-courses/)		3
Lab Science/Mathematics (https://catalog.ptc.edu/student-handbook/advising-registration/general-education-courses/)		3
Hours		12
Second Year		
Fall Semester		
AMT 105	Robotics and Automated Control I	3
EEM 251	Programmable Controllers	3
IMT 170	Statistical Process Control	3
EEM 200	Semiconductor Devices	4
EEM 231	Digital Circuits I	3
Hours		16
Spring Semester		
AMT 205	Robotics and Automated Control II	3
EEM 140	National Electrical Code	3
EEM 162	Introduction to Process Control	3
EEM 241	Microprocessor I	3
Hours		12
Total Hours		69

Spring Start - Greenwood Only (Day Only)

Course	Title	Hours
First Year		
Spring Semester		
COL 103	College Skills	3
EEM 117 or EET 111	AC/DC Circuits I or DC Circuits	4

EEM 118 or EET 112	AC/DC Circuits II or AC Circuits	4
Mathematical Requirement (https://catalog.ptc.edu/student-handbook/advising-registration/general-education-courses/)		3
Hours		14
Summer Semester		
EEM 140	National Electrical Code	3
IMT 112	Hand Tool Operations	3
IMT 161	Mechanical Power Applications	4
IMT 170	Statistical Process Control	3
Hours		13
Fall Semester		
EEM 151 or EET 231	Motor Controls I or Industrial Electronics	4
EEM 200	Semiconductor Devices	4
EEM 231	Digital Circuits I	3
IMT 131	Hydraulics and Pneumatics	4
Hours		15
Second Year		
Spring Semester		
AMT 105	Robotics and Automated Control I	3
EEM 241	Microprocessor I	3
EEM 251 or EET 235	Programmable Controllers or Programmable Controllers	3
ENG 165 or ENG 101	Professional Communications or English Composition I	3
Lab Science/Mathematics (https://catalog.ptc.edu/student-handbook/advising-registration/general-education-courses/)		3
Hours		15
Summer Semester		
AMT 205	Robotics and Automated Control II	3
EEM 162 or EET 233	Introduction to Process Control or Control Systems	3
Elective Behavioral Science (https://catalog.ptc.edu/student-handbook/advising-registration/general-education-courses/)		3
Elective Humanities/Fine Arts (https://catalog.ptc.edu/student-handbook/advising-registration/general-education-courses/)		3
Hours		12
Total Hours		69

Application and Advising

If you are ready to start your education, there are a few simple steps involved in enrolling at Piedmont Technical College.

Get Started Today (<https://www.ptc.edu/admissions/new-students/>)

Advising Information

The following information provides a guide for advisors who are helping students enroll in this program.

Program Notes

The Mechatronics program starts every fall semester on the Greenwood campus, the Center for Advanced Manufacturing campus in Laurens, the Newberry Campus, the Abbeville Campus, and the Saluda Campus. Saluda Campus offers a limited number of courses. Students starting in other semesters will be accommodated based on the course offerings. Please note that it may delay graduation.

Notes About Individual Classes

Please advise students to take math as soon as possible. Math course(s) may be chosen by the student from the lab sciences/mathematics list located on the General Education Courses page (<https://catalog.ptc.edu/student-handbook/advising-registration/general-education-courses/>).

Program Student Learning Outcomes

Purpose Statement

Combining electronic, mechanical, robotics and information system technologies, this program provides the graduate with the skill set needed for today's automated manufacturing facilities. These skills will align with current needs of manufacturers as well as align with one or more industrial standards/certifications. Instruction covers hydraulics and pneumatics, robotics and automated controls, programmable controllers, process control and mechanical applications. The student will receive practical hands-on experience and computer simulation on automated assembly line processes.

Program Student Learning Outcomes:

1. Demonstrate a logical sequence for isolating problems within a Mechatronics process.
2. Analyze a process control system operation and select the appropriate sensing equipment for that operation.
3. Operate and adjust robots and automated systems equipment.
4. Analyze the operating difficulties of an automated system and perform the corrective actions needed.
5. Demonstrate the correct procedures in the breakdown, inspection, and repair of hydraulic and pneumatic equipment.
6. Test, analyze, and troubleshoot an industrial machine or process using a programmable logic controller (PLC).
7. Demonstrate an understanding of the use of PLC software and interface applications.