MECHATRONICS: AUTOMATION AND INSTRUMENTATION (TECHNICAL CERTIFICATE)

Award: Technical Certificate
Major: Mechatronics
Emphasis: Automation and Instrumentation
Program Code: 1198

The Mechatronics Technician program responds to a new and emerging career that trains technicians with “multi-craft” skills to work on robotic and “intelligent” equipment ranging from ATM machines to multi-million-dollar manufacturing cells. The skills taught include electrical, mechanical, and computer technologies. Mechatronics technicians will assist the design, development and engineering staff, and install, maintain, modify and repair mechatronic systems, equipment and component parts. The program combines academic training with hands-on activities.

For more information on what you can do with this major, visit CMU Tech's Programs of Study page.

All CMU/CMU Tech associate graduates are expected to demonstrate proficiency in specialized knowledge/applied learning, quantitative fluency, communication fluency, critical thinking, personal and social responsibility, and information literacy. In addition to these campus#wide student learning outcomes, graduates of this major will be able to:

1. Demonstrate safe work habits in performance of tasks. (Applied Learning)
2. Demonstrate basic electrical/electronic circuit troubleshooting skill sets and repair skill sets to fulfill the needs of entry-level employment. (Critical Thinking)
3. Demonstrate basic hydraulic, pneumatic, troubleshooting skill sets and repair skill sets to fulfill the needs of entry-level employment. (Critical Thinking)

Requirements

Each section below contains details about the requirements for this program. Select a header to expand the information/requirements for that particular section of the program's requirements.

To print or save an overview of this program's information, including the program description, learning outcomes, requirements, suggested course sequencing (if applicable), and advising and graduation information, scroll to the bottom of the left-hand navigation menu and select "Print Options." This will give you the options to either "Send Page to Printer" or "Download PDF of This Page." The "Download PDF of This Page" option prepares a much more concise presentation of all program information. The PDF is also printable and may be preferable due to its brevity.

Institutional Certificate Requirements

The following institutional requirements apply to all CMU or CMU Tech Technical Certificates. Specific programs may have different requirements that must be met in addition to institutional requirements.

- Consists of 5-59 semester hours.
- Consists of 100-200 level courses.
- At least fifty percent of the credit hours must be taken at CMU/CMU Tech.
- 2.00 cumulative GPA or higher in all courses taken to satisfy certificate requirements.
- A grade lower than “C” will not be counted toward meeting the requirements.
- A course may only be used to fulfill one requirement for each degree/certificate.
- Non-traditional credit, such as advanced placement, credit by examination, credit for prior learning, cooperative education and internships, cannot exceed twenty-five percent of the semester credit hours required for a technical certificate.
- Pre-collegiate courses (usually numbered below 100) cannot be used for graduation.
- Capstone exit assessment/projects (e.g., Major Field Achievement Test) requirements are identified under Program-Specific Certificate Requirements.
- The Catalog Year determines which program sheet and certificate requirements a student must fulfill in order to graduate. Visit with your advisor or academic department to determine which catalog year and program requirements you should follow.
- See “Requirements for Undergraduate Degrees and Certificates” in the catalog for a complete list of graduation requirements.

Program Specific Certificate Requirements

(31 semester hours)

Code	Title	Semester Credit Hours
ELCE 124	Electrical Safety	1
ELCE 150	DC Circuit Fundamentals	4
ELCE 155	AC Circuit Fundamentals	4
ELCE 220	Industrial Controls	4
ELCE 225	Introduction to PLCs	4
ELCE 229	AC/DC Variable Speed Drive	2
MAMT 115	Introduction to Machine Shop	3
MAMT 145	Machine Maintenance	2
MATH 108	Technical Mathematics (or higher)	4
TSTG 150	Introduction to Fluid Power	3
Total Semester Credit Hours		**31**

Suggested Course Plan

First Year

Fall Semester		Semester Credit Hours
ELCE 150	DC Circuit Fundamentals	4
ELCE 225	Introduction to PLCs	4
MAMT 115	Introduction to Machine Shop	3
MATH 108	Technical Mathematics [1]	4
ELCE 124	Electrical Safety	1
	Semester Credit Hours	**16**

Spring Semester		
ELCE 155	AC Circuit Fundamentals	4
ELCE 220	Industrial Controls	4
ELCE 229	AC/DC Variable Speed Drive	2
MAMT 145	Machine Maintenance	2
TSTG 150	Introduction to Fluid Power	3
	Semester Credit Hours	**15**
	Total Semester Credit Hours	**31**

[1] MATH 108 is a 4-semester credit hour course; however, if a student completes a higher-level, Essential Learning eligible Mathematics course it must be at least 4 semester credit hours.

Advising and Graduation

Advising Process and DegreeWorks

Documentation on the pages related to this program is intended for informational purposes to help determine what courses and associated requirements are needed to earn a certificate. Some courses are critical to complete in specific semesters while others may be moved around. Meeting with an academic advisor is essential in planning courses and discussing the suggested course sequencing. It is ultimately the student's responsibility to understand and fulfill the requirements for their intended certificate.

DegreeWorks is an online degree audit tool available in MAVzone. It is the official record used by the Registrar's Office to evaluate progress towards a certificate and determine eligibility for graduation. Students are responsible for reviewing their DegreeWorks audit on a regular basis and should discuss questions or concerns with their advisor or academic department head. Discrepancies in requirements should be reported to the Registrar's Office.

Graduation Process

Students must complete the following in the first two months of the semester prior to completing their certificate requirements (for one-semester certificates, complete in the first week of class):

- Review their DegreeWorks audit and create a plan that outlines how unmet requirements will be met in the final semester.
- Meet with their advisor and modify their plan as needed. The advisor must approve the final plan.
- Submit the "Intent to Graduate" form to the Registrar's Office to officially declare the intended graduation date and commencement ceremony plans.
- Register for all needed courses and complete all requirements for each degree sought.

Submission deadlines and commencement details can be found on the Graduation web page.

If a student's petition for graduation is denied, it will be their responsibility to apply for graduation in a subsequent semester. A student's "Intent to Graduate" does not automatically move to a later graduation date.