

# CERTIFICATE OF ACHIEVEMENT - ADVANCED MANUFACTURING AND AUTOMATION.

This program prepares individuals in the core competencies of front-line production employment for the manufacturing industry. It complies with nationally recognized industry standards and emphasizes basic skills in workplace safety, quality practices and measurement, manufacturing processes and production, and maintenance awareness.

## Certificate Outcomes

Students completing the certificate will:

- Introduction and basic operation of Autonomous Systems, Programmable Logic Controllers, and Robotics.
- Practice safety at all levels in a modern manufacturing and distribution plant.
- Diagnose and repair electrical and mechanical components commonly used in a production operation.
- Use quality control standards to troubleshoot inefficiencies in a production system.

Certificates of Achievement are a set of courses within an AAS degree that can serve as a stepping stone to an AAS degree or allow students to enter the workforce. Certificates of Achievement have a general education component.

To earn a Certificate of Achievement, students must:

1. Maintain a minimum cumulative GPA of 2.0 (see requirements for graduation.)
2. Complete a minimum of 15 semester credit hours within the college.
3. Satisfy General Education requirements for the AAS (<http://catalog.tmcc.edu/degrees-certificates/general-education/aas>).
4. Have no financial or library obligation to the college.

### General Education Requirements

*Communications* 3

*Human Relations* [3]

Requirement is satisfied through embedded curriculum in the following courses: MT 108, MPT 110, MPT 120, MPT 135, MPT 140.

*Mathematics* [3]

Requirement is satisfied through embedded curriculum in the following courses: ENRG 110, ELM 127, ELM 129, ELM 134, MT 108.

### Certificate Requirements

ELM 127	Introduction to AC Controls	3
ELM 129	Electric Motors and Drives	3
ELM 134	Programmable Logic Controllers I	3
ELM 110	Electrical/Electronic Circuits	4
ELM 233	Introduction to Instrumentation	3
MPT 110	Automated Production Concepts I	3
MPT 120	Automated Production Concepts II	3

MPT 135	Material Handling	2
MPT 140	Quality Control	3
MT 108	Fluid Power (Pneumatics, Hydraulics, Instrumentation)	3
OSH 222	General Industry Safety	1
Total Units		34

Course	Title	Units
<b>1st semester</b>		
Communications <sup>1</sup>		3
ELM 110	Electrical/Electronic Circuits	4
MPT 110	Automated Production Concepts I	3
MPT 135	Material Handling	2
MT 108	Fluid Power (Pneumatics, Hydraulics, Instrumentation)	3
OSH 222	General Industry Safety	1
Semester Total		16
<b>2nd semester</b>		
ELM 233	Introduction to Instrumentation	3
ELM 127	Introduction to AC Controls	3
ELM 129	Electric Motors and Drives	3
ELM 134	Programmable Logic Controllers I	3
MPT 120	Automated Production Concepts II	3
MPT 140	Quality Control	3
Semester Total		18
Total Units		34

<sup>1</sup> See program recommendations or requirements.