

# CERTIFICATE OF ACHIEVEMENT, ADVANCED MANUFACTURING AND AUTOMATION

## Program Description

The Certificate of Achievement, Advanced Manufacturing and Automation 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.

## Recommended Course Schedule

| 1st semester                |  | Units     |
|-----------------------------|--|-----------|
| 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, Electro-pneumatics) | 3         |
| OSH 222                     | General Industry Safety                      | 1         |
| <b>Semester Total</b>       |  | <b>16</b> |
| 2nd semester                |  | Units     |
| 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         |
| <b>Semester Total</b>       |  | <b>18</b> |
| <b>Total Units</b>          |  | <b>34</b> |

1

See program recommendations or requirements.

Certificates of Achievement are a set of courses that can serve as a stepping stone to an associate 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 Certificate of Achievement (<http://catalog.tmcc.edu/degrees-certificates/general-education/aas/>).
4. Have no financial or library obligation to the college.

| Code   | Title  | Units     |
|--|--|-----------|
| <b>General Education Requirements</b>  |  |           |
| <i>Communications</i>  |  | 3         |
| <i>Human Relations</i>   |  | [3]       |
| Requirement is satisfied through embedded curriculum in the following courses: MT 108, MPT 110, MPT 120, MPT 135, MPT 140. |  |           |
| <i>Mathematics</i>   |  | [3]       |
| Requirement is satisfied through embedded curriculum in the following courses: ELM 110, ELM 127, ELM 129, ELM 134, MT 108. |  |           |
| <b>Certificate Requirements</b>  |  |           |
| 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, Electro-pneumatics) | 3         |
| OSH 222  | General Industry Safety                      | 1         |
| <b>Total Units</b>   |  | <b>34</b> |

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.