ADVANCED MANUFACTURING AND AUTOMATION, COA

Program Code: Adv Man & Automation-CoA

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 [1]		3
Recommended: ENG 100, ENG 101 or ENG 102		
ELM 110	Electrical/Electronic Circuits	3
MT 108	Fluid Power (Pneumatics, Electro-pneumatics)	3
MPT 160	Mechanical Drive Systems I	3
ELM 140	Industrial Robotics I	3
	Semester Total	**15**
2nd semester		
ELM 127	Introduction to AC Controls	3
ELM 134	Programmable Logic Controllers I	3
ELM 240	Advanced Manufacturing and Robotic Systems	3
MPT 110	Automated Production Concepts I	3
MPT 140	Quality Control	3
	Semester Total	**15**
	Total Units	**30**

[1] See program recommendations or requirements.

Program Requirements

Certificates of Achievement can be 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 (https://catalog.tmcc.edu/degrees-certificates/general-education/aas/).
4. Have no financial or library obligation to the college.

Code	**Title**	**Units**
General Education Requirements		
Communications		*3*
Recommended: ENG 100, ENG 101, ENG 113		
Human Relations		*[3]*
Requirement is satisfied through embedded curriculum in the following courses: MPT 110, MPT 140, MPT 160, ELM 127, ELM 240, MT 108.		
Mathematics		*[3]*
Requirement is satisfied through embedded curriculum in the following courses: ELM 110, ELM 134, ELM 140, MPT 140.		
Certificate Requirements		
ELM 110	Electrical/Electronic Circuits	3
ELM 127	Introduction to AC Controls	3
ELM 134	Programmable Logic Controllers I	3
ELM 140	Industrial Robotics I	3
ELM 240	Advanced Manufacturing and Robotic Systems	3
MPT 110	Automated Production Concepts I	3
MPT 140	Quality Control	3
MPT 160	Mechanical Drive Systems I	3
MT 108	Fluid Power (Pneumatics, Electro-pneumatics)	3
Total Units		**30**

Program Outcomes

Students completing the certificate will:

PSLO1: Demonstrate an understanding of and ability to operate mechatronic equipment relating to electrical, fluid, and mechanical power.

PSLO2: Describe introductory to intermediate level components and concepts related to industry 4.0.

PSLO3: Program and operate programmable components of manufacturing facilities such as robotic arms and programmable logic controllers and comprehend how sensors are involved in their operation.