

MANUFACTURING TECHNOLOGIES, AAS

Automation and Robotics

Associate of Applied Science, Manufacturing Technologies, Automation and Robotics is a two year program designed to provide advanced training and technical job skills to students seeking employment within the advanced manufacturing field. Students will utilize state of the art equipment and robotics to integrate, diagnose, and troubleshoot highly advanced production systems.

Outcomes

Students completing this emphasis will:

- Students will operate equipment and tools used in manufacturing processes. Students will read and interpret technical prints for the diagnostic and troubleshooting of components and production systems.
- Students will understand programming, interfacing, and troubleshooting Programmable Logic Controllers.
- Students will be able to integrate and troubleshoot motor controls, pneumatics, hydraulics, computers, PLCs, and robotics into complex production systems. Students will apply quality and statistical process control techniques to manage complex production systems and troubleshoot inefficiencies.

AAS degrees are generally non-transfer degrees that are designed for students to enter the workforce.

To earn an AAS degree, students must:

1. Maintain a minimum cumulative GPA of 2.0 (see requirements for graduation.)
2. Complete a minimum of 15 units 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.

Code	Title	Units
General Education Requirements		
<i>English/Communications</i>		6
Recommended:		
BUS 107	Business Speech Communications	
Required:		
ENG 102	Composition II ¹	
	or ENG 114 Composition II For International Students	
<i>Fine Art, Humanities, Social Science</i>		3
Recommended:		
ANTH 201	Peoples and Cultures of the World ²	
<i>Mathematics:</i>		[3]
Embedded in ELM 110 and ELM 134		
<i>Science</i>		3
Required:		
MTT 150	Metallurgy I	
Additional College Requirements		
<i>Diversity</i> ²		[3]

Recommended:		
ANTH 201	Peoples and Cultures of the World ²	
<i>Human Relations</i>		[3]
Embedded in MPT 140, WELD 211, WELD 212, ELM 110, ELM 127		
U. S. and Nevada Constitutions		3
Required: Choose one or two courses from the following:		
PSC 101	Introduction to American Politics	
	or CH 203 American Experiences and Constitutional Change	
HIST 101 & HIST 102	US History to 1877 and U. S. History since 1877	
HIST 101 & HIST 217	US History to 1877 and Nevada History	
HIST 101 & PSC 100	US History to 1877 and Nevada Constitution	
HIST 101 & PSC 208	US History to 1877 and Survey of State and Local Government	
Degree Requirements		
DFT 110	Print Reading for Industry	3
MPT 140	Quality Control	3
OSH 222	General Industry Safety	1
Emphasis Requirements		
ELM 110	Electrical/Electronic Circuits	4
ELM 127	Introduction to AC Controls	3
ELM 134	Programmable Logic Controllers I	3
ELM 233	Introduction to Instrumentation	3
ELM 140	Industrial Robotics I	3
MPT 110	Automated Production Concepts I	3
MPT 120	Automated Production Concepts II	3
MPT 130	Automated Production Concepts III	3
MT 108	Fluid Power (Pneumatics, Hydraulics, Instrumentation)	3
Elective Requirements		10
Choose 10 units from the following:		
CE 290	Work Experience	
CIT 112	Network +	
CIT 114	IT Essentials	
ECON 102	Principles of Microeconomics	
ELM 129	Electric Motors and Drives	
ENGR 100	Introduction to Engineering Design	
ENV 101	Introduction to Environmental Science	
MATH 126	Pre-Calculus I (or higher)	
MPT 150	Solid Modeling for Manufacturing Technicians	
MPT: any remaining Manufacturing and Production Technology Courses.		
MTT 230	Computer Numerical Control I	
MTT: Any remaining Machine Tool Technology courses		
WELD: Any welding course		
Total Units		60

¹ If you place into ENG 102 or ENG 114 the additional 3 required units may become elective units.

² May also count toward degree requirements. Please consult with Academic Advisement.

1st semester		Units
Communications ⁴		3
DFT 110	Print Reading for Industry	3
ELM 110	Electrical/Electronic Circuits	4
ELM 127	Introduction to AC Controls	3
OSH 222	General Industry Safety	1
Semester Total		14
2nd semester		
English ³		3
MT 108	Fluid Power (Pneumatics, Hydraulics, Instrumentation)	3
MPT 110	Automated Production Concepts I	3
ELM 134	Programmable Logic Controllers I	3
MTT 150	Metallurgy I	3
Semester Total		15
3rd semester		
Elective ⁴		6
ELM 233	Introduction to Instrumentation	3
MPT 120	Automated Production Concepts II	3
U.S. and Nevada Constitutions ³		3
Semester Total		15
4th semester		
Elective ⁴		4
Fine Arts, Humanities, Social Sciences ³		3
MPT 130	Automated Production Concepts III	3
MPT 140	Quality Control	3
ELM 140	Industrial Robotics I	3
Semester Total		16
Total Units		60

³ See approved General Educations requirements for the AAS Degree. (<http://catalog.tmcc.edu/degrees-certificates/general-education/aas>)

⁴ See Program recommendations or requirements.