WELDING - ASSOCIATE OF APPLIED SCIENCE (AAS)

Description

The Associate of Applied Science in Welding is a culmination of the career pathway and one-year certificates of completion. Emphasis is on structural welds that include multiple positions and fabrication. Students will weld overhead, vertical, and cylindrical pipe. All welding methods are used. Students also use destructive testing methods of welds.

Along with welding, the degree allows electives that can be taken in the machine shop. Students can take manual or computer numerical control (CNC) classes in machining.

Program Learning Outcomes

Upon successful completion of the degree, students will be able to:

1. Model industry safety standards in a welding/fabrication environment.
2. Summarize test standards and information in order to pass the American Welding Society Expert Welder practical knowledge qualification written test.
3. Perform the specific skills needed to pass American Welding Society Expert Welder performance qualification tests.
4. Apply inspection, testing, and acceptance criteria at the American Welding Society Expert Welder level.
5. Model effective and appropriate communication with welding professionals and clients.

Entrance Requirements

Academic Entrance Requirements

Recommended:

- High school diploma or GED
- Completion of MTH 060 Beginning Algebra or minimum placement Math Level 10
- College-level computer skills

Additional Costs (Beyond Standard Tuition/Fees and Textbooks)

Material Costs

Required:

- Personal protective equipment and tools: approximately $250

Recommended:

- A desktop or laptop computer capable of running the latest version of Windows and Microsoft Office: approximately $600

Enrollment Fees

- Fees on specific MFG courses: approximately $1,100 total

Course Requirements

Course	Title	Credits
Core Courses		
MFG 100	Manufacturing Technology Orientation	1
MFG 103	Welding Technology I	4
MFG 104	Blueprint Reading for Welders	4
MFG 105	Welding Technology II	4
MFG 107	Welding Technology III	4
MFG 110	Manufacturing Processes I	4
MFG 119	Manufacturing Design and Drafting Techniques	4
or MFG 119M	Mechanical Drawing Techniques	
MFG 264	Automated Cutting	3
MFG 267	Oxygen-Fuel and Plasma Cutting	3
MFG 271	SMAW	4
MFG 272	GMAW	4
MFG 280	Co-op Work Experience Manufacturing	1-4
MFG 281	GTAW	4
MFG 282	FCAW	4
MFG 288	Industrial Fabrication	4
MFG 289	Material Handling-Fork Lift Safety	1
Welding Program Electives [1]		**20**
MFG 102	Blueprint Reading Sheet Metal	
MFG 112	Manufacturing Processes II	
MFG 114	Manufacturing Processes III	
MFG 133	Quality Assurance	
MFG 201	Bench Work	
MFG 202	Metals Preparation	
MFG 203	Layout	
MFG 210	Vertical Milling	
MFG 214	Lathe Operator I	
MFG 216	Lathe Operator II	
MFG 250	Additive Manufacturing I	
MFG 254	Manufacturing Jigs and Fixtures	
MFG 256	CNC Mill Programming	
MFG 257	CNC Mill I	
MFG 258	CAM Mill I	
MFG 259	CNC Lathe Programming	
MFG 260	CNC Lathe I	
MFG 261	CAM Lathe I	
MFG 266	Manufacturing Cost Estimation	
Other Required Courses		
Choose one from the following:		3-4
BA 178	Customer Service	
BA 285	Business Human Relations	
COMM 115	Introduction to Intercultural Communication	
COMM 218Z	Interpersonal Communication	
COMM 219	Small Group Communication	
MFG 283	GTAW II	3
MFG 284	FCAW II	3
MTH 102	Applied Technical Mathematics (or choose from the foundational requirements math list)	4
WR 121Z	Composition I	4
Total Credits		**90-94**

[1] Recommended electives: MFG 201, MFG 202, MFG 203, and MFG 254.

Advising Notes

Manufacturing Technology courses are structured to enable students to meet benchmarks through the completion of labs and hands-on projects.

Upon starting their program, students review their desired certificate or degree outcome with their advisor. Students should continue to meet with their advisors on a continuous basis to ensure they remain on track for degree completion.

This certificate is designed for students to directly enter the manufacturing workforce. Transferability of course credits to other public, or private, institutions' degree programs is dependent on those institutions' policies.

Performance Standards

- Academic Requirements:
  - Students must have a 2.0 cumulative GPA to earn a COCC certificate or degree.
  - All courses in the program must be completed with a grade of C or higher.

Sample Plan

First Year		
First Term		**Credits**
MFG 100	Manufacturing Technology Orientation	1
MFG 103	Welding Technology I	4
MFG 104	Blueprint Reading for Welders	4
MFG 110	Manufacturing Processes I	4
MFG 119 or MFG 119M	Manufacturing Design and Drafting Techniques or Mechanical Drawing Techniques	4
	Credits	**17**
Second Term		
MFG 105	Welding Technology II	4
MFG 107	Welding Technology III	4
MFG 264	Automated Cutting	3
MFG 267	Oxygen-Fuel and Plasma Cutting	3
	Credits	**14**
Third Term		
MFG 271	SMAW	4
MFG 272	GMAW	4
MFG 281	GTAW	4
MFG 282	FCAW	4
Welding program elective		2
	Credits	**18**
Second Year		
First Term		
MTH 102	Applied Technical Mathematics (or choose from the foundational requirements math list)	4
Welding program elective (recommend MFG 201)		2
Welding program elective (recommend MFG 202)		2
Welding program elective (recommend MFG 254)		2
Welding program elective		3
	Credits	**13**
Second Term		
Welding program elective (recommend MFG 203)		2
Welding program elective		3
Welding program elective		4
WR 121Z	Composition I	4
	Credits	**13**
Third Term		
Choose one course from the following:		3-4
BA 178	Customer Service	
BA 285	Business Human Relations	
COMM 115	Introduction to Intercultural Communication	
COMM 218Z	Interpersonal Communication	
COMM 219	Small Group Communication	
MFG 280	Co-op Work Experience Manufacturing	1-4
MFG 283	GTAW II	3
MFG 284	FCAW II	3
MFG 288	Industrial Fabrication	4
MFG 289	Material Handling-Fork Lift Safety	1
	Credits	**15-19**
	Total Credits	**90-94**