

MANUFACTURING MACHINING TECHNICIAN - ASSOCIATE OF APPLIED SCIENCE (AAS)

Program Description

The Manufacturing Machining Technician Associate of Applied Science prepares students to produce manufactured products. The program includes instruction in manual and Computer Numerical Control (CNC) machine operations, production line operations, computer-aided manufacturing (CAM), and quality control.

The degree benefits students who are new to design and machining technology and those currently in the field seeking to expand skills and increase career opportunities. Students who have a non-technology career in another field may find this degree ideal for cross training into CNC and CAD/CAM manufacturing.

Program Learning Outcomes

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

1. Use fixture design in production environment.
2. Analyze machine operation for optimization opportunities.
3. Develop part-holding options for computer numerical control (CNC) lathe and mill.
4. Model effective and appropriate communication with manufacturing professionals and clients.
5. Demonstrate safe practices in a machine shop.

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:

- Machining personal protective equipment and tools: approximately \$250:
- Hardcopy of textbook: approximately \$220

Recommended:

- A desktop or laptop computer capable of running the latest version of the Windows operating system and the latest version of Microsoft Office.

Enrollment Fees

- Fees on specific MFG courses (estimated \$1,100 total)

Course Requirements

Course	Title	Credits
Core Courses		
MFG 100	Manufacturing Technology Orientation	1
MFG 101	Blueprint Reading	3
MFG 103	Welding Technology I	4
MFG 110	Manufacturing Processes I	4
MFG 112	Manufacturing Processes II	4
MFG 119	Manufacturing Design and Drafting Techniques	4
or MFG 119M	Mechanical Drawing Techniques	
MFG 133	Quality Assurance	3
MFG 161	Capstone Project I	3
MFG 201	Bench Work	2
MFG 202	Metals Preparation	2
MFG 219	MFG Design/Drafting II	4
MFG 250	Additive Manufacturing I	3
MFG 257	CNC Mill I	4
MFG 258	CAM Mill I	4
MFG 259	CNC Lathe Programming	4
MFG 260	CNC Lathe I	4
MFG 261	CAM Lathe I	4
MFG 264	Automated Cutting	3
MFG 268	CNC Mill II	4
MFG 270	CNC Fixture Design Mill	3
MFG 277	CNC Lathe II	4
MFG 279	Capstone Project II	3
MFG 280	Co-op Work Experience Manufacturing	1-4
MFG Electives		13
Support Courses		
Choose one course from the following:		4
COMM 115	Introduction to Intercultural Communication	
COMM 218Z	Interpersonal Communication	
COMM 219	Small Group Communication	
MTH 102	Applied Technical Mathematics (Or one math course from the foundational requirements math list)	4
WR 121Z	Composition I	4
Total Credits		100-103

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 degree 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 Term		Credits
MFG 100	Manufacturing Technology Orientation	1
MFG 101	Blueprint Reading	3
MFG 103	Welding Technology I	4
MFG 110	Manufacturing Processes I	4
MFG 119 or MFG 119M	Manufacturing Design and Drafting Techniques or Mechanical Drawing Techniques	4
Credits		16
Second Term		
MFG 112	Manufacturing Processes II	4
MFG 201	Bench Work	2
MFG 202	Metals Preparation	2
MFG 219	MFG Design/Drafting II	4
MFG 250	Additive Manufacturing I	3
MFG Elective		3
Credits		18
Third Term		
MFG 133	Quality Assurance	3
MFG 161	Capstone Project I	3
MFG 264	Automated Cutting	3
MFG Elective		4
MTH 102	Applied Technical Mathematics (Or one math course from the foundational requirements math list)	4
Credits		17
Fourth Term		
MFG 257	CNC Mill I	4
MFG 258	CAM Mill I	4
MFG 260	CNC Lathe I	4
MFG 261	CAM Lathe I	4
Credits		16
Fifth Term		
MFG 268	CNC Mill II	4
MFG 277	CNC Lathe II	4
MFG 270	CNC Fixture Design Mill	3
MFG Elective		3
WR 121Z	Composition I	4
Credits		18
Sixth Term		
Choose one course from the following:		4

COMM 115	Introduction to Intercultural Communication	
COMM 218Z	Interpersonal Communication	
COMM 219	Small Group Communication	
MFG 259	CNC Lathe Programming	4
MFG 279	Capstone Project II	3
MFG 280	Co-op Work Experience Manufacturing	1-4
MFG Elective		3
Credits		15-18
Total Credits		100-103