

MANUFACTURING CNC MACHINE OPERATOR - ONE-YEAR CERTIFICATE (CC1)

Program Description

The Manufacturing CNC Machine Operator One-Year Certificate of Completion incorporates introductory manufacturing processes to provide hands-on experiences emphasizing computer numerical control (CNC) setup, operation, and code modification. The certificate skill sets align with industry-recognized proficiencies that qualify a graduate to apply for entry-level positions as a computer-controlled machine tools operator or CNC setup technician.

Program Learning Outcomes

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

1. Interpret part drawings and their tolerances.
2. Fabricate items with computer aided drafting/computer aided manufacturing.
3. Use measurement tools.
4. Use computer numerical control mill and lathe safely.

Entrance Requirements

Academic Entrance Requirements

Recommended:

- High school diploma or GED
- Completion of MTH 060 Beginning Algebra or minimum placement Math Level 10
- Successful completion of or current enrollment in MFG 100 MFG Orientation
- College-level computer skills

Additional Program Costs (Beyond Standard Tuition/Fees and Textbooks)

Material Costs

Required:

- Machining personal protective equipment and tools: approximately \$250

Enrollment Fees

- Fees on specific MFG courses: \$600

Course Requirements

Course	Title	Credits
MFG 100	MFG 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 Mechanical Drawing Techniques	4
MFG 133	Quality Assurance	3
MFG 161	CNC Project I	4
MFG 250	Additive Manufacturing	2

MFG 256	CNC Mill Programming	4
MFG 257	CNC Mill Setup & Operation	4
MFG 259	CNC Lathe Programming	4
MFG 260	CNC Lathe Setup & Operation	4
MTH 102	Applied Technical Mathematics (Or one math course from the foundational requirements math list)	4
WR 121Z	Composition I	4
Choose one course from the following:		4
COMM 115	Introduction to Intercultural Communication	
COMM 218Z	Interpersonal Communication	
COMM 219	Small Group Communication	

Total Credits **53**

Advising Notes

Nearly all MFG courses are self-directed and outcome based. This provides students with a greater degree of flexibility than many other programs.

Upon starting their program, students review their desired certificate or degree outcome with their advisor, and a sequence of coursework is identified for them. This is particularly important if developmental work is needed.

This certificate is designed for students planning to enter the manufacturing workforce upon graduation. Often only selected credits are considered transferable to public or private baccalaureate institutions. Before starting any manufacturing program, students are advised to contact the institution to which they intend to transfer and identify what credits may be transferable.

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		Credits
First Term		
MFG 100	MFG 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 133	Quality Assurance	3

MFG 250	Additive Manufacturing	2
MFG 256	CNC Mill Programming	4
MFG 257	CNC Mill Setup & Operation	4
MTH 102	Applied Technical Mathematics (Or one math course from the foundational requirements math list)	4
Credits		17
Third Term		
MFG 259	CNC Lathe Programming	4
MFG 260	CNC Lathe Setup & Operation	4
WR 121Z	Composition I	4
MFG 161	CNC Project I	4
Credits		16
Fourth Term		
Choose one course from the following:		4
COMM 115	Introduction to Intercultural Communication	
COMM 218Z	Interpersonal Communication	
COMM 219	Small Group Communication	
Credits		4
Total Credits		53