

CNC/CAM PROGRAMMING CERTIFICATE

22 Semester Credit Hours; Curriculum: 0277

Intermediate level certificate prepares students for technical positions in Computer Numerical Control (CNC) and advanced manufacturing. The main focus of the program is development of CNC programming skills by students who already have basic machining/CNC experience. Students will learn advanced techniques related to setup and programming of CNC turning and milling centers.

Code	Title	Hours
Courses for a Certificate		
MFG 102	Industrial Drafting and Design	3
MFG 110	Introduction to Machining	3
MFG 141 or MFG 142	CNC Machine Operation - NIMS CNC Setup and Operations	4
MFG 144	Introduction to CNC Programming	4
MFG 165	Mastercam (CAM)	4
MFG 166 or MFG 145	Advanced Mastercam Advanced CNC Programming	4
Total Hours		22

CNC/CAM Programming Certificate Pathway

The following Pathway is recommended for students pursuing the CNC/CAM Programming Certificate.

First Year		Hours
Semester One		
MFG 110	Introduction to Machining	3
MFG 141 or MFG 142	CNC Machine Operation - NIMS or CNC Setup and Operations	4
Hours		7
Semester Two		
MFG 102	Industrial Drafting and Design	3
MFG 144	Introduction to CNC Programming	4
MFG 165	Mastercam (CAM)	4
Hours		11
Second Year		
Semester One		
MFG 145 or MFG 166	Advanced CNC Programming or Advanced Mastercam	4
Hours		4
Total Hours		22

Note: Pathway is a recommended sequence of courses. Students should contact the department chair or program coordinator with questions about course prerequisites and recommendations.

Program Learning Outcomes

1. Propose the best machining process based on engineering drawings.
2. Discuss the principles of CNC setup, operation, and programming.
3. Demonstrate proper setup of tooling and fixtures on CNC machines.
4. Create advanced CNC programs to control CNC Turning Center.
5. Compose complex CNC programs to control CNC Milling Center.