

ADVANCED CNC CERTIFICATE

32 Semester Credit Hours; Curriculum: 0258

Certificate expands beyond skills traditionally taught in Computer Numerical Control (CNC) program. It includes additional classes such as industrial robotics frequently used for machining tending and Programmable Logic Controllers (PLC) which serve as a brain of any modern manufacturing cell. Upon certificate completion, students should be ready for advanced positions in CNC field.

Code	Title	Hours
Courses for a Certificate		
MFG 101	Occupational Safety	2
MFG 102	Industrial Drafting and Design	3
MFG 110	Introduction to Machining	3
MFG 141	CNC Machine Operation - NIMS	4
MFG 144	Introduction to CNC Programming	4
MFG 165	Mastercam (CAM)	4
MFG 210	Industrial Robotics and Automation	4
MFG 240	Programmable Logic Controllers (PLC)	4
Select one of the following:		4
MFG 145	Advanced CNC Programming	
MFG 166	Advanced Mastercam	
MFG 245	Programmable Automation Controllers (PAC)	
Total Hours		32

Advanced CNC Certificate Pathway

The following Pathway is recommended for students pursuing the Advanced CNC Certificate.

First Year

Semester One (Spring)	Hours
MFG 101 Occupational Safety	2
MFG 102 Industrial Drafting and Design	3
MFG 110 Introduction to Machining	3
MFG 144 Introduction to CNC Programming	4
Hours	12

Semester Two (Fall)

MFG 165 Mastercam (CAM)	4
MFG 210 Industrial Robotics and Automation	4
MFG 240 Programmable Logic Controllers (PLC)	4
Hours	12

Second Year

Semester One (Spring)	Hours
MFG 141 CNC Machine Operation - NIMS	4
Select one of the following:	
MFG 145 Advanced CNC Programming	4
MFG 166 Advanced Mastercam	
MFG 245 Programmable Automation Controllers (PAC)	
Hours	8
Total Hours	32

Note: Pathway is a recommended sequence of courses. Part-time students should contact the program coordinator to discuss a part-time pathway as well as course prerequisites and recommendations.

Program Learning Outcomes

1. Examine OSHA safety procedures related to CNC machining.
2. Evaluate engineering drawings to plan machining operations.
3. Explain benefits and limitations of advanced CNC machines.
4. Demonstrate correct setup and proper operation of CNC machines.
5. Create complex programs to run CNC Turning and Milling Centers.
6. Justify integration of robotics and PLC with CNC machines.