COMPUTER NUMERICAL CONTROL (CNC) CERTIFICATE

PROGRAM CODE: 2C08416

The **Computer Numerical Control (CNC) Certificate** is designed to prepare students for programming multi-axis CNC machines. This certificate program is designed for students wishing to further pursue a career in machining or manufacturing. This type of certificate program typically leads to entry to intermediate level careers as a machinist, toolmaker, CNC operator, CNC programmer, manufacturing engineer, process engineer, field service technician as well as a number of other manufacturing/service positions. This Certificate Program requires 33-36 units to be taken in required courses. An additional 10-14 units must be chosen from the restricted electives listed below. This certificate requires a total of 43-50 units. At least one half of the units toward the certificate must be completed at Fullerton college. A grade of C or better is required for each course taken.

Code	Title	Units
Required Courses (33-36 units):		
DRAF 101 F	Blueprint Reading for Manufacturing (formerly DRAF 070 F)	2
DRAF 140 F	AutoCAD for Industry	3
DRAF 173 F	Geometric Dimensioning and Tolerancing	2
MACH 101 F	Introduction to Machine Tools (formerly MACH 091 F)	2-5
or MACH 116 F	Machine Tools	
MACH 110 F	CNC Machine Set-Up and Operation (formerly MACH 086 F)	3
MACH 115 F	CNC Parts Programming (formerly MACH 087 F)	3
MACH 150 F	CNC Programming Using Mastercam (formerly MACH 050 F)	3
MACH 152 F	Advanced CNC Programming Using Mastercam (formerly MACH 052 F)	3
or MACH 156 F	Advanced CNC Programming Using Surfcam (formerly MACH 062 F)	
MACH 154 F	CNC Programming Using Surfcam (formerly MACH 060 F)	3
METL 192 F	Fundamentals of Metallurgy	3
TECH 081 F	Technical Mathematics I	3
TECH 108 F	Manufacturing Processes	3
Restricted Electives (10-14 units):		**10-14**
MACH 102 F	Intermediate Machine Tools (formerly MACH 092 F)	5
MACH 120 F	Advanced CNC Machining (formerly MACH 088 F)	3
TECH 088 F	Technical Science	3
TECH 127 F	Industrial Safety	2
WELD 100 F	Introduction to Welding (formerly WELD 121AF)	3
Total Units		**43-50**

Outcome 1: Demonstrate an understanding of computer numerical control programs for CNC turning and milling machines and prepare a program to machine piece parts per drawing specifications.

Outcome 2: Demonstrate the ability to evaluate machined parts per drawing specifications by selecting and utilizing the appropriate measuring tools.

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