

PROGRAM APPROVAL APPLICATION
NEW or SUBSTANTIAL CHANGE or LOCALLY APPROVED
(This application may not exceed 3 pages)

Fill In Form

Computer Numerical Control (CNC) Certificate	Fall-2018
Proposed Program Title	Projected Program Start Date
Fullerton College	North Orange County Community College District
College	District

Contact Information

Doug Benoit	Dean Business & CIS Office
Voting Member	Title
714-992-7033	dbenoit@fullcoll.edu
Phone Number	Email

Goal(s) of Program (Check all that apply):

Career Technical Education (CTE) Transfer Other

Type of Program (Check all that apply):

Certificate of Achievement 12-17 (or 17-27 quarter) units Certificate of Achievement 18+ semester (or 27+ quarter) units
 Associate of Science Degree Associate of Arts Degree

Reason for Approval Request (Check One):

New Program Substantial Change Locally Approved

Program Information

0956.00 Recommended [Taxonomy of Program \(TOP\) Code](#)
 _____ Units for Major-Degree
 _____ Total Units for Degree
 41-46 Required Units-Certificate

Written Form

1. Insert the description of the program as it will appear in the catalog. (See PCAH pp. 142 and 170)

The Computer Numerical Control (CNC) Certificate Program 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. The Computer Numerical Control (CNC) Certificate Program requires the completion of 41-46 units of which 32-35 units are in required courses. An additional 9-11 units must be chosen from the restricted electives listed. A minimum grade of "C" is required in each course taken. At least one half of the units toward the certificate must be completed at Fullerton College.

2. Provide a brief rationale for the program.

- In 2013, the **average manufacturing worker earned around \$77,000 annually including benefits**. That pay is \$15,000 more than the average of all industries. (US Bureau of Labor Statistics)
- The United States economy relies on this sector. There are 17.6 million jobs in manufacturing in the United States; that's **1 of every 6 private sector jobs**. It is the foundation of economic stability and the ninth largest economy in the world.
- The median annual Machinist I salary in the Fullerton area is \$43,721 as of February 22, 2016. (Salary.com)
- Per the U.S. Bureau of Labor Statistics it is estimated that 12% of the Orange County workforce is employed in manufacturing jobs. The U. S. Bureau of Labor Statistics show since 2010, manufacturing employment in Orange County has recovered faster than in California and the United States. From 2010 to 2013 there was an 8% increase in manufacturing jobs in Orange County. According to the Boston Consulting Group there is an expected demand of manufacturing related positions due to a “reshoring” trend that is occurring in the United States. This trend has affected the California urban areas where manufacturing is occurring and it is expected to continue.

3. Summarize the Labor Market Information (LMI) and employment outlook (including citation for the source of the data) for students exiting the program. (See PCAH pp. 85-88, 136, 147, 148, 165, 168, and 176)

The three-year average supply from regional colleges is 51 per year.

Regional annual openings for the SOC codes listed within the 49 and 51 groups are 790 indicating a gap of 739 hires per year. Source: <http://coecc.net/supply-demand/> For Orange County

EDD enrollment projection stated below.

SOC Code	Occupational Title	Estimated Employment 2012	Projected Employment 2022	Numeric Change 2012-2022	Percent Change 2012-2022	Annual Average Percent Change
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Orange County

514041	Machinist	5,950	6,880	930	15.6	1.6
499041	Industrial Machinery Mechanics	1,520	1,850	330	21.7	2.2
499043	Maintenance Workers, Machinery	590	720	130	22.0	2.2
514011	Computer-Controlled Machine Tool Operators, Metal and Plastic	1,770	2,050	280	15.8	1.6
514012	Numerical Tool and Process Control Programmers	470	650	180	38.3	3.9
514111	Tool and Die Makers	800	830	30	3.8	.38
519061	Inspectors, Testers, Sorters, Samplers, and Weighers	7,010	7,290	280	4.0	.4

California

514041	Machinist	34,000	39200	5200	15.3	1.5
499041	Industrial Machinery Mechanics	20,900	26,100	5,200	24.9	2.5
499043	Maintenance Workers, Machinery	7,000	8,000	1,000	14.3	1.4
499044	Millwrights	2,400	2,800	400	16.7	1.7
514011	Computer-Controlled Machine Tool Operators, Metal and Plastic	8,600	10,000	1,400	16.3	1.6
514012	Numerical Tool and Process Control Programmers	2,500	3,600	1,100	44.0	4.4
514111	Tool and Die Makers	3,200	3,300	100	3.1	.31
519061	Inspectors, Testers, Sorters, Samplers, and Weighers	48,200	52,200	4,000	8.3	.83

4. List similar programs at other colleges in the Los Angeles and Orange County Region which may be adversely impacted. (There is space for 10 listings, if you need more, please contact laocrc@rscdd.edu)

College	Program	Who You Contacted	Outcome of Contact
Cerritos College	Manufacturing Technology	C. Vo and website	Left voice mail
Orange Coast College	Manufacturing Technology	Alan Cervantes	Left email
Santa Ana College	Manufacturing Technology	Dietrich Kanzler	Left email

5. List all courses required for program completion, including core requirements, restricted electives and prerequisites. (There is space for 20 listings, if you need more, please contact laocrc@rscdd.edu).
 (See PCAH pp. 143 and 171)

Courses	Course Number	Course Title	Units
Required core (32-35)	DRAF070 F	Blueprint Reading for the Metal Trades	2
	DRAF140 F	AutoCAD For Industry	2
	DRAF173 F	Geometric Dimensioning and Tolerancing	2
	MACH150 F	CNC Programming Using Mastercam	3
	MACH154 F	CNC Programming Using Surfcam	3
	MACH152 F	Advanced CNC Programming Using Mastercam	3
	MACH156 F	Advanced CNC Programming Using Surfcam	3

	Machine 154 F	CNC programming using Surfcam	3
	Machine 110 F	CNC Machine Set-up & Operation	3
	Machine 115 F	CNC Parts Programming	3
	Machine 101 F	Introduction to Machine Tools	5
		OR	2
	Machine 116 F	Machine Tools	
	METL 192 F	Fundamentals of Metallurgy	3
	Tech 081 F	Technical Mathematics I	3
	TECH 108 F	Manufacturing Processes	3
Restrictive Electives (9-11 units)	DRAF145 F	CAD/CAM	2
	TECH088 F	Technical Science	3
	TECH127 F	Industrial Safety	1
	WELD121AF	Introduction to Welding	2
	MACH102 F	Intermediate Machine Tools	5
	MACH120 F	Advanced CNC Machining	3
Total Units			41-46

6. Include any other information you would like to share.