

**Program Description and Mission**

**1 A)** The Manufacturing and CNC Program (MCNC) offers broad yet in-depth curriculum that imparts a strong foundation for direct employment in local industries or transfer to a four-year college. Diversification is the hallmark of the program.

The MCNC Technology program offers state-of-the-art instruction in computerized machining, model making/rapid prototyping and materials processing. The curriculum is ideally suited to those who are new to the field, as well as conventional machinists and machine operators who wish to update their skills and advance in this rapidly changing industry. The Skills Certificates and Certificate of Achievement in Manufacturing Technician are the initial point of entry into the Manufacturing and CNC program. Students who complete the program will have a solid foundation in basic manufacturing systems and processes with the opportunity to choose a further specialization in the areas of advanced set-up, operation, programming, metrology and inspection. The program is also a primary choice for many Silicon Valley engineers, designers, planners and purchasers who wish to increase their "hands on" skills and overall knowledge of the design and manufacturing process in order to advance their careers.

Examples of career possibilities include: Computer Numerical Control Machinist, Product Model Maker, Computer Numerical Control Programmer, CNC/Research & Development Machinist, Systems Technician, Manufacturing / Engineering and Industrial Engineering Technician.

DeAnza College's Manufacturing and CNC Technology program offers state-of-the-art classroom and lab facilities. Students have the opportunity to work with CNC lathes, vertical machining centers with 4th axis rotary capabilities, as well as the only 4 axis horizontal machining center in use at a college in the state of California. The students also have access to coordinate measuring machines, inspection equipment, conventional machining equipment and two CAD/CAM programming labs. Manufacturing and CNC Technology offers an accelerated day program, designed for those who need to reenter the workforce quickly. Courses are also offered in the evening to accommodate incumbent workers. The program is also approved by the California Department of Apprenticeship Standards to teach classes for the International Association of Machinists and Aerospace Workers, which is currently active at this time. The DeAnza MCNC program also has the distinguished honor of being one of two college institutions in California having a "Haas Technical Education Center" accredited program, with the other being Cal-Poly SLO. The department coordinator sits on the board of the 2011 North American Haas Educational Council, representing 407 community colleges using over 2350 CNC machines in the USA. DeAnza is also the only certified Mastercam CAD/CAM community college training provider in Northern California. The program maintains strong industry connections with equipment manufacturers, software developers, and distributors who recognize the program as one of the elite in the country.

The main strengths of the MCNC program are our close ties to industry, as well as ties to high school and four-year college programs. Major companies such as NASA, Grumman Marine Division, Loral Space Systems, Lockheed Space Systems, BAE Defense Systems as well as local manufacturing job shop facilities are closely involved in our advisory committee. These companies depend on the MCNC program to enhance the skills of their existing and future employees in high tech manufacturing. The program also has articulating agreements with the CCOC (Central County Occupational Center) and the Industrial Technology program at San Jose State.

### **Program Description**

**1 B)** Certificate and degree programs offered (title and units)

**Skills Certificate** (*not transcribed*) – **CAD/CAM – Mastercam - 13.5 units**

**Skills Certificate** (*not transcribed*) – **CNC Machine Operator - 13.5 units**

**Certificate of Achievement – Manufacturing Systems Technician - 22.5 units**

**Certificate of Achievement – Advanced–CNC Machinist - 40.5 units**

**Certificate of Achievement – Advanced–CNC Research and Development Machinist - 48 units**

**Certificate of Achievement – Advanced–Product Model Making - 41 units**

**A.S. Degree – CNC Machinist – 40.5 units plus General Education**

**A.S. Degree – CNC Research and Development Machinist – 48 units plus General Education**

**A.S. Degree – Product Model Making – 41 units plus General Education**

**\*\*Skills Certificates have taken the place of Certificate of Achievement.**

#### **Skills Certificate**

**CNC Machine Operator - 50**

**CAD/CAM Mastercam – 22**

#### **Certificates of Achievement-Advanced**

*Formerly Certificates of Proficiency*

**CNC Machinist – 2**

**CNC research and Development Machinist – 2**

**Product Model Making – 1**

#### **Associate in Science degrees**

**CNC Machinist – 5**

**CNC research and Development Machinist – 2**

**Product Model Making – 3**

### **Regional and State Labor Market Data**

**2 D)**

Employment opportunities for Manufacturing and CNC Technology program graduates exist in large manufacturing facilities and small, independent design shops. Individuals with a background in manufacturing technology can also parlay their skills into other related positions in the industry: CAD/CAM programmers, PLC programmers, and tool and die makers.

According to the California Employment Development Department's Labor Market Information data for the San Jose-Sunnyvale-Santa Clara MSA, there are projected to be 131 combined annual openings for the period 2006-2016 for individuals with this set of skills. The strongest demand will be for machinists with 57 annual openings and a steady growth rate of 6.1%. There will also be demand for computer-controlled machine tool operators with 45 annual openings and growth rate of 18.5%. There will be a limited demand for tool and die makers with only 2 annual openings.

While the above is a sampling of the main career opportunities available, the MCNC program serves a variety of other careers. Over the years the program has provided Mechanical Engineers, Industrial Engineers, Program Managers, Manufacturing Planners and Purchasers with career advancing knowledge and skills. These jobs represent a significant number of current career positions, as well as job growth in the Bay Area.

In addition to the San Jose-Sunnyvale-Santa Clara MSA, the Manufacturing and CNC program provides training to many other areas. DeAnza offers the only manufacturing and CNC program in the surrounding counties. As of 2010 DeAnza serves a vast area, such as Monterey, San Benito, Santa Cruz, San Mateo and San Francisco Counties where no existing Manufacturing and CNC programs exist.

