

Description and Mission of the Program

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

The MCNC department is comprised of two basic components, an on-campus and off-campus program. The on-campus programs are directed to the average community college population while the off-campus courses, referred to as the Job Corps/De Anza Program, serve low-income at-risk youths. Although the off-campus program was significantly reduced with the college budget cut backs in 2009, the program will continue in a much smaller capacity in the future. Therefore, the overall numbers for the program could fluctuate in the future.

B) The main strengths of the on campus 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 smaller manufacturing companies 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 MCNC program is also approved by the State of California to teach classes for the International Association of Machinists and Aerospace Workers, which is currently active at this time. DeAnza College has an on going association with Haas CNC, which is the largest manufacturer of CNC machine tools in the world. As of this date Haas has entrusted over two-hundred and forty thousand dollars of equipment, as well as another three thousand in scholarships to our program. 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 program is also in the beginning stages of articulating agreements with a local high school, CCOC (Central County Occupational Center) and the Industrial Technology program at San Jose State.

The strength of the off-campus program is and always will be serving low-income at-risk youths. These individuals have an opportunity to learn skills that will help them with job opportunities as well as direction, such as attending a local college or educational institution.

C) With technology changing at a rapid pace, our main area for improvement will be maintaining computers and a network system that allows us to teach at the highest level possible. This year we purchased 1 gig server with our own funds and could not utilize the full potential because the building has 10 meg switches. The MCNC program is known for its high level CAD/CAM instruction in the area and will continue to be the leader as long as we work together improving our technology systems.

Internships are another area we wish to improve on. The department goal is to work as closely as possible with our Advisory group members to create short term internship positions. This would allow the student to gain "real world" experience while attending MCNC classes. Although the economic crisis has slowed are successes we will keep moving forward until we achieve this goal.

D) The MCNC department has a very high expected outcome for our students. Our main goal is to start the student on a path to obtain A.S degree or a Certificate of Achievement Advanced, with the opportunity to transfer to an Industrial Technology or Engineering program. Counselors are provided with program information, guides on course offerings, schedules and direct support when needed. The strength of the program is providing skills needed to obtain a high end career in the manufacturing. The faculty will continue to actively help place students in jobs, seek financial aid for those in need, and provide counseling on course selection and scheduling.

Students in the off-campus program are given a head start in their studies to help assure successful completion and are provided with instructional aids for individual support. The students main goals are to obtain academic, vocational, employable skills and social competencies through a combination of classroom, practical and computer based learning experiences to prepare youth for stable, long-term, high-paying jobs, with the opportunity to continue their education at a Community College.

Retention and Growth

A) The MCNC department, both on and off campus, has been very successful with its response to the institutional goals of increased access, growth and retention. As you will see by the following numbers, our main goal would to be 100% retention in all areas.

- 2005-2006 Enrollment/Grades: 23,297 Retention: 100%
- 2006-2007 Enrollment/Grades: 22,321 Retention: 97%
- 2007-2008 Enrollment/Grades: 19,714 Retention: 99%
- **Note:** Due to budget constraints and other issues, the off- campus program has been reduced **significantly** in 2008-2009. We will re-evaluate our data and make possible changes to our institutional goals in the future.

B) The nature of our program and the students we serve both on campus and off-campus, have always had great success in the retention of two of the three targeted populations. Given the entrance criteria applied to Job Corps program, identifying a group as underrepresented in the off-campus program is not appropriate. The following are the numbers for the targeted populations.

- Targeted Populations 2005-2006 46% Retention: 100%
UNRECORDED MAKES UP 50% / FALLS UNDER NON-TARGETED
- Targeted Populations 2006-2007 68% Retention: 98%
UNRECORDED MAKES UP 25% / FALLS UNDER NON-TARGETED
- Targeted Populations 2007-2008 92% Retention: 100%
UNRECORDED MAKES UP 2% / FALLS UNDER NON-TARGETED
- **Note:** Due to budget constraints and other issues, the off- campus program has been reduced **significantly** in 2008-2009. We will re-evaluate our data and make possible changes to our institutional goals in the future.

C) Although “basic skills” are not directly addressed in the MCNC program, they do factor in to the overall success rate of the program. It has been observed by instructors in our department that students that have a much harder time reading text books, handouts and other information, do not score as well on quizzes, mid-term and final exams. These same students are quite successful in the lab when teaching with visual aides, computer exercises and hands on demonstrations. Math skills are very important in our program because it is the universal skill that is required in 95% of all the tasks required. Although we do not directly teach math, all of our instructors learning plans include trig, speed and feed formulas, decimal system, fractions, measuring and other basic mathematics needed to be successful in our program. Because of the methods we use in our program and the overall student to instructor ratio being lower in the vocational programs the overall success rate of the program is close to 90%. The impact of the lack of basic skills is approximately 2% in the overall success rate of students in our program. It is and always will be the main goal of our department to help and direct students to enroll in “basic skill” classes so they will be successful in future.

Student Equity

A) The MCNC program has had very good success in decreasing the gap in the student equity. The success rate for all of the populations has been comparable.

- Success Rate 2007-2008 Targeted: 84% Non-Targeted: 89%
- Success Rate 2006-2007 Targeted: 89% Non-Targeted: 81%
- Success Rate 2005-2006 Targeted: 86% Non-Targeted: 89%

B) Following are some examples the MCNC work toward achieving our goals to increase the success of students within the program.

- The program faculty, support a philosophy of teaching well-defined course objectives and assuring these objectives are taught with the same depth and breadth in every class, regardless of who is teaching. This promotes student success as they traverse sequential courses.
- Students in the off-campus program are given a head start in their studies to help assure successful completion.
- Off-campus students are provided with instructional aids for individual support.
- The faculty will continue to actively help place students in jobs, seek financial aid for those in need, and provide counseling on course selection and scheduling.
- Students are closely monitored; if they are absent the faculty makes contact to offer help or guidance.
- Counselors are provided with program information, guides on course offerings, schedules and direct support when needed.
- Faculty works closely with insurance companies and grant agencies in setting up training programs for recently injured/disabled workers.

C) As of this moment one of the greatest challenges will be loss of funds. In order to find more ways to establish methods of retention and success, it will also take more people and resources' to reach out to these groups. **Note:** Due to budget constraints and other issues, the off- campus program has been reduced **significantly** in 2008-2009. The future data will be examined and the goals of the department adjusted as necessary.

Budget Limitations

A) There are many limitations placed on a program when funding becomes an issue.

The main area that would be devastating would be the loss of the MCNC Tech position. The MCNC Tech position is critical for the following reasons:

- This person is trained and responsible for Hazmat compliance in the MCNC Lab, which would be a definite compliance issue if the responsibility was shifted to a faculty member.
- The Tech position is a high level position which requires very sophisticated skills. This person repairs and codes the high end machinery used by the department. It is critical that all equipment is in operating condition at all times in order to support all classes in the lab.
- This position prepares all of the work orders, purchase requisitions, and schedules maintenance for the equipment with outside vendors as required.
- The Tech also supervises students in the lab. Safety is the major concern in this regard. Without proper supervision, a student could easily injure themselves resulting in liability to the District. Having the instructor and the tech in the lab during classes has resulted in an impeccable safety record over the last 35 years.

Having a valued member of the staff allows the instructors to focus on curriculum building recruiting and overall retention and success of the targeted and non targeted populations we strive to help in our off-campus and on-campus program at DeAnza College.

Having opportunities of receiving increased funding is necessary so the program will have the latest technology, such as modern CNC Mills, Lathes, 4th axis Rotary tables and Indexers, Cad Cam software and high-tech cutting tools. The program could survive with short term limited funding, but continued long term limited funding would be devastating to any vocational program. I have personally been involved with other programs in the Bay Area that have had this happen. The equipment is so out dated and dilapidated that students will not attend. Vocational programs don't die because there is no need to train for manufacturing positions for lack of jobs in the Bay Area. They die because no major employer or person relates to training received at a College with equipment or computer software that is ten to twenty years old. Fortunately, the MCNC program at DeAnza College is nowhere near this phase and has a reputation as one of the most modern teaching facilities in the country.

B) This question was briefly addressed previously. The following are possible results to students, the college and the community if the program was significantly reduced or eliminated:

- DeAnza is the only college in the area that has been approved to teach State apprenticeship courses. Loss: possible elimination of apprenticeship program to the student/employee as well as a qualified program to the community and loss of jobs.
- The MCNC program has relationships with major companies, such as Northrop Grumman Lockheed, Loral as well as many small business owners (which include minority and women owners) in the Bay Area. The program trains new and existing students/employees in the manufacturing field. Loss: Lost career opportunities to DeAnza college students as well as a loss to minority business owners in the local community.
- Haas Automation currently has donated over 250 thousand dollars of equipment and scholarships to DeAnza College. Loss: Students, some already receiving financial aid, lose the opportunity to continue their education from the elimination of scholarships. DeAnza College would lose a community partner that has helped the college save thousands in new equipment through donations and entrustments.

The list could go on and on. The bottom line is there would be limited opportunities for students, many in the targeted population we try so hard to help, to gain skills so they may become employable

and contributing members of the community. It is our responsibility at DeAnza College to help all the students in the community, not just the students going to four year colleges. Although it is our department goal to help all students achieve their highest educational level, a vocational and employable skill is very important in the lives of many students.

Additional Comments

- Additional comments regarding targeted populations:

In the MCNC on-campus program underrepresented refers to females. Given the entrance criteria applied to Job Corps program, identifying a group as underrepresented in the off-campus program is not appropriate. Therefore, the following applies only to the on-campus program.

MCNC students reflect an average cross section of the college's population, except in one area; gender. Females are under represented. The department feels there are great opportunities in manufacturing and have been trying to promote this area to women; however it has been a challenge. The percentage of women has increased from 2% to 5% over the last twenty years and the department is above the state average when compared to similar programs. A good record, but more improvement is the goal.

- Relationships with Other Programs:

In the past six years the MCNC program has developed several relationships with major corporations. Our partners have combined to donate over 300 thousand dollars in equipment, scholarships, lubricants, cutting tools, holders and discounted Cad/Cam software. Haas Automation, the number one CNC machine tool builder in the world, entrusted a CNC Lathe and Horizontal Mill valued at more than two- hundred and thousand dollars as well as student scholarships valued at three thousand dollars, is valued partner of the College. Haas also loaned the college a fifty thousand dollar CNC Office Mill to display at the Night of Magic as well as purchasing a table for their local employees. The company rates DeAnza College as one of the top ten manufacturing colleges in the United States. Blaser Swisslube supports the program with cutting tool lubricants valued at one thousand dollars a year. This company not supports the program financially, but also teaches them about coolants that are environmentally safe and the importance of a green future. Seco Tools helps the College with a fifty percent discount on all cutting tools and holders and supports the program with additional teaching aids and classroom information. There contribution adds up to approximately two thousand dollars a year. Mastercam, Surfcam and Vericut have discounted software to the program, totaling several thousand dollars, for several years. These companies are the top Software programs in the country and use DeAnza as a model program in there educational endeavors. The MCNC program spends many days, including weekends, working to partner to with major corporations. We also travel the state, many times paying travel expenses out of our own pocket, visiting our valued partners as well as cultivating more partnerships with others. The MCNC program is proud to have these partners and to be regarded as on of the top programs in the country.

- Comparable Programs at other Institutions:

The full time faculty at DeAnza College spends a considerable time traveling to many Community colleges in the State. Our goal is to find different methods used in other comparable programs that can add value to the MCNC program. To date we have visited seven programs in Southern California and have seen first hand what not to do while taking away a couple small items that had value. The greatest accomplishment of the trips was their requests to come and see our program. Many have visited, with requests for samples of our class syllabus, lesson plans, lab demonstrations and more. The greatest accomplishment a program you can have is when you travel the state looking for a program to model and come home realizing DeAnza has the model program.