PROGRAM REVIEW 2008-2011

Division: **Business and Computers**

Department or Program: **Computer Aided Design and Digital Imaging**

Name and Title of Preparer(s): **Louis Gary Lamit- Departmental Coordinator**

In providing responses in the following areas, **please utilize the quantitative data available in the Program Review Enrollment Data Document and the Budget Document.** For the purposes of the Program Review, both departments and programs will be referred to as "program."

I. **Description and Mission of the Program**

Which area(s) does this program considerably address:

___ Basic Skills **XX** Transfer **XX** Career/Technical ___Other (describe)

A. Provide a brief description of the program including any services provided and the program's mission.

The CDI CAD program at De Anza College officially started in 1984 with the introduction of Computervison to the curriculum. Previously, (1965-1984) the Drafting department had a traditional drafting and design certificate and degree program. During the last 25 years the CAD program has changed names and divisions a number of times while continuously evolving and reinventing itself to meet the needs of the high-tech job market in Silicon Valley. In the past, Computervison, Personal Designer, Calma, and CADAM were offered. Presently, AutoDesk's AutoCAD, 3D Civil, Architectural desktop, and Inventor, PTC's Pro/ENGINEER, SolidWorks and CosmosWorks, and Unigraphics are the CAD design packages taught in the program. CDI has morphed primarily into a technical training program that serves local business and industry in providing professionals access to the latest CAD programs. CDI provides skill set development for engineers, designers, and drafters. We also have a 2-yr AA degree that can be transferred to university design and engineering programs.

B. Provide a summary of the program's main strengths.

CDI CAD provides immediate access to the highest level software training in CAD systems used throughout Silicon Valley and the world. The program is managed so as to quickly respond to the introduction of new technology and high-tech design tools so that local residents can retrain, retool, and enlarge their design tool sets to stay employed or find employment. We provide job training and also have an extensive industry connection so as to provide students and former students access to jobs that become available. We have helped place thousands of students in high-paying positions throughout the years. There is no other program in Northern California (and some would say throughout the country) that has a program comparable CDI CAD at De Anza.

C. Provide a summary of the program's main areas for improvement.

CDI CAD needs a day-time full-time AutoDesk instructor to provide CAD training in architectural related fields for transfer students and to supplement other programs on campus such as interior design, cabinet building and art.

At present, every time slot during the day, Friday nights, and Saturdays has two filled rooms except in the mornings when one room is not utilized because of the lack of an instructor for ACAD. We average 36 students for every class in rooms that have 34 computers. The one ACAD class we provide every term on Saturdays has 10-20 people on the waiting list.

D. What are your expected outcomes (such as learning outcomes, transfer, career goals, certificate and degrees) for students in your program?

CDI CAD has both a transfer and a certificate program. At present over 65% of our students have four-year engineering degrees and 5% have masters or doctoral degrees. We primarily serve a highly educated and industry experienced segment of local engineering business. Our typical student has 10-15 years experience. These students use the program for retraining-retooling and for completing certificates in CAD tools needed for them to sustain, change, or find employment. Without the very expensive CAD tools we provide training in, the local design and engineering community would be hard-pressed to stay gainfully employed and the local engineering firms would not be able to staff their engineering and design departments.

A smaller but important segment of the program provides the traditional entry-level student with access to the fields of drafting and design and for transfer of their AA degree to university programs in industrial design, manufacturing and engineering.

II. **Retention and Growth**

A. How has the program responded to the institutional goal of increased access, growth and retention? (Include the number of students enrolled in the program and the retention rate over the last three years.)

CDI CAD has see n a small but increasing enrollment with one of the best retention and success percentages throughout the college. It must be noted that **all** of our classes are **filled every day, every night (including Friday evenings), and Saturdays**. We have only two rooms of 34 stations in each that have been averaging 36 students per room! This is done by allowing some students to complete their work on a flexible schedule. We CANNOT improve enrollment- we have no room to add computers in the rooms allocated.

	Actual			**Projections**		
Dimension	**2005-06**	**2006-07**	**2007-08**	**2008-09**	**2009-10**	**2010-11**
Enrollment/Grades (Fiscal Year)	1,077	1,009	1,216	1,228	1,240	1,253
WSCH (Fiscal Year)	7,663	7,549	8,801	8,889	8,978	9,068
Productivity (Fiscal Year)	532	595	640			
Retention % (Fiscal Year)	95%	92%	94%	94 %	94 %	94%
Success % (Fiscal Year)	94%	90%	91%	91%	91 %	91%
Classroom Teaching FTEF (Academic Yr)						
Full-time FTEF	1.97	1.72	1.67		Projection Methodology	
PT/Overload FTEF	2.34	2.01	2.47	Enrollment and WSCH projections based on 1%		
Total FTEF	4.31	3.73	4.14	annual increases from the last actual year.		
Percent Full-time	46%	46%	40%	Retention and Success rate projections are one percentage point increases from the last actual		
Reassigned FTEF	0.00	0.00	0.00	year, unless the last actual year is greater than 90% in which case there is no change.		
Number of Sections (Fiscal Yr)	97	102	103			
% Vocational Education	100%	100%	100%			
% Transferable	58%	54%	54%			
% Degree Applicable	100%	100%	100%			
% Not Basic Skills	100%	100%	100%			

B. How has the program responded to the institutional goal of increased access, growth and retention <u>specifically for the identified targeted populations of African Ancestry, Latino/a, and Filipino/a students</u>? (Include the number and percentage of the program's enrollment that was made up of the targeted populations and the retention rate of the targeted populations over the last three years.)

CDI CAD has a large enrollment of engineers and designers locally and from throughout the world including every race and culture. Both male and female in typical percentages found through the world's industrial countries avail themselves to our engineering-CAD program. CDI has excellent retention and completion rates for all groups. A majority of the program serves non-white students.

Success Rates, Fiscal Year 2007-08

Dimension	Distribution			Non-		Percent	Percent Non-	Percent
	Count	Col %	Success	success	Withdraw	Success	success	Withdraw
Ethnicity								
Asian	424	35	382	14	28	90	3	7
Black	23	2	19	1	3	83	4	13
Filipino	51	4	48	1	2	94	2	4
Hispanic	123	10	109	3	11	89	2	9
Native Am	4	0	4	0	0	100	0	0
Pac Islander	11	1	9	1	1	82	9	9
White	449	37	414	17	18	92	4	4
Other	21	2	16	1	4	76	5	19
Unrecorded	110	9	106	4	0	96	4	0
Total	1,216	100	1,107	42	67	91	3	6
Gender								
Female	240	20	219	10	11	91	4	5
Male	976	80	888	32	56	91	3	6
Total	1,216	100	1,107	42	67	91	3	6
Age								
19 or less	43	4	39	2	2	91	5	5
20 - 24	132	11	118	9	5	89	7	4
25 - 29	148	12	134	6	8	91	4	5
30 - 34	149	12	135	4	10	91	3	7
35 - 39	136	11	120	4	12	88	3	9
40 - 49	287	24	265	12	10	92	4	3
50 +	321	26	296	5	20	92	2	6
Total	1,216	100	1,107	42	67	91	3	6

C. The Statewide Basic Skills Initiative defines "basic skills" as English, mathematics, reading, writing and ESL skills. In what ways does your program address the basic skills needs of students? For programs that do not directly address basic skills, how does the lack of basic skills impact student success rates for your program?

Over 80% of our students have AA, BA, MA, or PhD degrees. They can do math at a higher level than students in any other program on campus. 75% speak more than one language and all have sufficient if not excellent English skills.

III.   **Student Equity**

A. What progress or achievement has the program made towards decreasing the student equity gap? (Include student success rates for targeted populations compared with other students over the last three years.)

We have no student equity gap, in fact it could be shown that all students perform at a similar success rate and that many "targeted groups" actually outperform what used to be traditional majority groups.

B. In what ways will the program continue working toward achieving these goals?

CDI CAD has no goals to achieve. We will continue to serve all groups equally and expect the success we have seen continue.

C. What challenges exist in the program in reaching such goals?

None, but we need a third full-tie instructor in ACAD/Architectural.

IV.   **Budget Limitations** (Please be specific in your responses.)

A. Identify any limitations placed on the program based on limited funding. What increases in resources are critical to the program and what are the consequences of continued limited funding on the program?

CDI CAD needs the FTE that was taken from it ten years ago. We have no other pressing funding needs.

B. Describe the consequence to students and the college in general if the program were eliminated or significantly reduced. Please be specific.

Instead of self-describing the consequences we have included two letters, one from a student and one from a local business. CDI has over 300 of these letters archived. The main loss to the college is loss of prestige since CDI is known throughout the country as the premier CAD program.

From a student--"As a mechanical engineer, I can attest to the great service that this program contributes to the Silicon Valley economic engine. The vibrancy of this region derives from the nexus of venture capital, entrepreneurial spirit, and an educated labor force with up-to-the-minute skills. The technical workforce is mobile and flexible. Like the doctor, who must read journals and attend conferences to keep up with the latest in medical practice, the mechanical engineer and the draftsperson must stay abreast of the latest developments in CAD software. When anything gets built, CAD is the primary communication tool.

When I first enrolled at De Anza College, I retrained from AutoCAD to Pro/Engineer. With each Pro/E software revision, De Anza night classes made it possible for me to transition smoothly into the upgrade. De Anza's self-paced study trumps $2000/week Pro/E "crash" courses that I have been sent to. Currently, I am a Sr. Design Engineer at Xoft Inc, a medical device start-up. The CAD software that I am using is SolidWorks 2008. When I interview engineers and draftsperson candidates, I need to determine CAD proficiency. If a candidate has been through the CDI-CAD program at De Anza, I never question capability. When I hear that a candidate has been taking night classes at De Anza, I know that they are disciplined and ambitious.

This program has made a big difference in my career. I am at the top of my game. I attribute it to the training I received at De Anza College. I urge you to support this program for the health of Valley and the advancement of our technical community."

From a local business-- My firm, provides mechanical design, drafting, and engineering services as well as technical staffing in the same. My single biggest issue comes from the inability to recruit mechanical engineers and designers who are trained in the correct use of upper end CAD packages such as Pro/E, SolidWorks, Inventor, and Unigraphics. The Silicon Valley is home to thousands of these types of jobs and the need is only increasing. Currently, I have far more open positions than I have qualified people to fill them. Interestingly enough, however, the support I see from our state funded community college system with regards to educating our work force is decreasing rather than increasing. For example, we are an East Bay firm and in the past we have been able to recruit qualified employees from Ohlone College in Fremont. Sadly, Ohlone College shut down their program and we receive no further support. It would be one thing if these were low end, minimum wage jobs. However, these types of jobs provide the income level necessary to support families as well as add to the states and local tax revenue base. If there are any types of programs that should be viciously protected and funded, it's these types of programs. Anyone looking at the big picture can see that

these are self funding if not profitable. Recently, my biggest customer told me that they are doing everything they can to send mechanical design and engineering tasks to India. They told me that it was just far too difficult to find qualified people here anymore. This is not an anomaly, it is happening throughout the valley. These are smart people in big companies and they'll figure it out. Once they do, you'll see engineering go the way of manufacturing and there won't be a need for these types of programs at all. In terms of engineering resources, De Anza College has been an oasis in the desert and we have hired several of these students. Please do what you can to protect our last public source of training in mechanical CAD. The Silicon Valley is the cradle of engineering in the United States. If we can't protect these programs here, where can we? If you have any questions, or require any assistance, please don't hesitate to contact me

V. **Additional Comments (optional):** What additional information is important to consider when reviewing the budget of your program for possible reductions? You may include any or all of the following, or other information.

- **Strategic Planning Initiatives (Community Collaborations, Cultural Competency, Outreach, and Individualized Attention for Retention):** Describe any other Strategic Planning Initiatives your program has addressed.

- **Relationships with Other Programs:** Describe any partnerships or collaborations that the program is actively engaged in, which reduce costs and/or improve service delivery.

    MCNC students use the CDI classes for their CAD education.

- **State and Federal Mandates:** Describe any State or Federal mandates that directly impact the program.

- **Trends (such as enrollment, certificate and degrees conferred, transfer rates, job placement, etc.):** Describe any positive and/or negative trends in the program.

    Local industry is responding to the national and international pressures to be more productive, create new and more vibrant designs and move forward into "green" technologies. All of these items require the use of a CAD system for the underlying design of their products. Nothing in the world gets created-designed-manufactured without CAD---NOTHING.

- **Comparable Programs at other Institutions:** Provide any information that you have that would allow for a comparison of the program to similar programs at other institutions in the State.

    Most CAD programs have been eliminated in the bay area because of program costs and lack of vision by their college administrators. CDI CAD at De Anza is the last remaining full-CAD program. It is the only CAD program in the state of California that holds classes in 4 of the 5 world's most utilized CAD programs (UG, SolidWorks, AutoDesk, and Pro/ENGINEER).