Instructional Program Review Report
Sierra College, Spring 2013

Department/Program Name: DRAFTING and ENGINEERING SUPPORT

Date Submitted: 2/7/2013

Submitted By: ALISON SALOME

Ideally, the writing of a Program Review Report should be a collaborative process of full-time and part time faculty as well as the appropriate educational administrator, instructional assistants, classified staff members and students who have an interest in the present and future vision of the program at all sites throughout the district. The Program Review Committee needs as much information as possible concerning the present and future of the program to assess and recommend the resources needed to keep the program viable and robust.

Please attach your Department Statistics Report (DSR) and your ePar Report when sending in your Program Review.

1) Relevancy: This section assesses the program's significance to its students, the college, and the community.

1a) To provide context for the information that follows, describe the basic functions of your program.

Reply here: The Drafting and Engineering Support program is a Career Technical Education program that prepares students to meet the regional workforce needs in the Drafting and Engineering Support fields in three major DES sectors (Architectural drafting, Mechanical drafting and Civil drafting) and provides educational and training opportunities for industry professionals.

Associate of Arts and Associate of Science degrees are available in two degree programs; Architectural-Civil Drafting and Mechanical-Civil Drafting

Three skill certificates are available for students seeking discipline specific industry skills: Drafting Essential Skills certificate, Mechanical Drafting Specialist certificate and Architectural Drafting Specialist Certificate

Additionally, the program provides innovative curriculum in support of several other Sierra College programs in the way of coursework that is relevant to the goals of those programs and to meet their student's needs.

The Drafting and Engineering Support department provides ongoing support and training to the regional and statewide community by hosting workshops and training for drafting and math instructors from the state's High Schools and Community Colleges.

We specialize in Drafting education, unlike most tech schools (and some community colleges) who concentrate on CAD skills but do not emphasize what needs to be on the drawings and why.

1b) How does your program fit within the district mission, as quoted below?

"Sierra College provides a challenging and supportive learning environment for students having diverse goals, abilities, and needs interested in transfer, career and technical training, and life long learning. The College's programs and services encourage students to identify and to expand their potential. Sierra College students will develop the knowledge, skills and abilities to become engaged and contributing members of the community."

The Drafting and Engineering Support program provides a challenging and supportive learning environment for students seeking initial career and technical training, those working in the drafting and engineering fields who are looking to further their workplace skills, and promotes the success of those seeking to transfer to 4 year Engineering and Architectural programs. This is facilitated by motivated educators who all have professional experiences in the drafting, design, and manufacturing fields. Positive results are inspired through promoting high standards, developing critical thinking skills and encouraging the individual potential in all students.

Our course offerings provide beginning level skills for entry students, Intermediate training for students who may have had some drafting education elsewhere, and advanced training for industry partners who need to learn new technologies for their employment.

The program provides curriculum in support of several other Sierra College programs in the way of coursework that is relevant to the goals of those programs. The following departments site DES courses as optional courses in their major certificates:
Welding- DES 1 and DES 2, GIS-DES 5 and DES 6, Construction Technology DES 20 and DES 21
The DES 1 and DES 2 courses satisfy the prerequisite for enrollment in the Engineering 22B course.
DES faculty is currently working with faculty from the Mechatronics department in effort to provide the DES 11 course as a course option for the Mechatronics major. Efforts are being made to incorporate Photo Voltaics installation drawings into the DES 20 and 21 courses to support the ESS major.

The Department's Full Time Faculty member, Alison Salome, is a member of the California Drafting Technology Consortium (CDTC) and has twice served as the president of that organization. The DES department at Sierra College hosted workshops on May 21, 2011 for instructors from as far away as Torrey Pines High School in southern California. Discipline specific content was presented by three of Sierra College's DES faculty and each person who attended learned current and relevant drafting technologies, techniques, and instructional strategies that they can incorporate into their drafting curriculum.

DES faculty are presently in the planning stages for an upcoming "Tips and Tricks in AutoCAD" clinic that will be open to students, faculty, High School instructors and industry partners in the local region.

1c) Program offerings align with which of the following mission categories (check all that apply):

☐ **Transfer** ☒ **Career Technical Education**
☐ **Basic Skills** ☐ **Personal Development/Enrichment** ☐ **Lifelong Learning**

1d) Please analyze the role of your department's programs and offerings in supporting the categories marked in 1c above; please provide evidence in support of this analysis. If any of the following apply to your program, please address them in your analysis.

- **The number of degrees, certificates, and/or licenses your department has generated**
  - **The alignment of these awards with the district's mission and/or strategic goals. (See the district "Awards Data File, available from Research and Planning, for your numbers).**

- **Job placement or labor market information for your program's awards and licenses.**
- **The contribution your program makes to student transfer.**
- **Participation in basic skills programs.**

As part of the Career Technical Education at Sierra College the Drafting and Engineering Support department recognizes the importance of CTE in preparing individuals who are contributing members of our local workforce and our community. The DES department is primarily focused on developing workforce individuals who have the discipline, skills and soft skills to be gainfully employed in the drafting, manufacturing and building trade sectors of our community.

In 2011-2012 the DES department awarded 44 degrees or certificates. That number is on the rise, note that only 21 were awarded 2005-2006. The growth in these numbers is attributed to degree and certificate revisions implemented in Fall 2011, and a more diligent effort to schedule necessary courses on a more frequent basis. Degree and certificate revisions were made to address the demographic and economic trends of the local regions. Skill certificates were added to address the combinations of classes that students were taking and then exiting to accept job offers.

California Community Colleges Chancellor's Office
Program Awards Summary Report

	Annual 2005-2006	Annual 2006-2007	Annual 2007-2008	Annual 2008-2009	Annual 2009-2010	Annual 2010-2011	Annual 2011-2012
Sierra Total	2,724	2,494	2,446	2,435	2,285	2,285	2,332
Associate of Science (A.S.) degree Total	704	671	691	805	837	968	1,143
Architectural Drafting-095310	3	2	3			5	
Mechanical Drafting-095340	2	2	2	3	1	1	4
Associate of Arts (A.A.) degree Total	1,868	1,714	1,611	1,479	1,249	995	779
Architectural Drafting-095310	3	3	1	3	1	1	2
Mechanical Drafting-095340	2	1	3	2	2		1
Certificate requiring 18 to < 30 semester units Total	83	50	69	96	100	137	141
Architectural Drafting-095310	8	1		5		4	2
Drafting Technology-095300	1						
Mechanical Drafting-095340	1		1	3			2
Certificate requiring 6 to < 18 semester units Total	35	26	37	30	65	135	213
Architectural Drafting-095310	1	1	1	1			4
Drafting Technology-095300				2	1	3	18
Mechanical Drafting-095340							11

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DES TOTALS	21	10	11	19	5	14	44

Labor market statistics and projections show that while mechanical drafting employment is on the rise, the recent decline in the building trades sectors has negatively affected projections in the Architectural drafting sectors. Upward projections in related fields of Engineering Technicians, Industrial Designers and Industrial Engineering are possible indicators that the trend of increased mechanical drafting opportunities may continue to rise. Advisory committee feedback has indicated that there will be an increased need in the Architectural field in the area of remodeling existing structures rather than new construction. The DES department is working to incorporate assignments to address remodel Architecture needs.

	Occupational Outlook, 2011-2016		Area	2011 Jobs	2016 Jobs	Change	% Change	Replace-ments	Total Openings	Annual Openings	Annual Salary Range (25th - 75th Percentile)	
Drafting Technology (TOP 0953, 095310, 095340)	17-3011	Architectural and Civil Drafters	Nev-Placer	237	224	(13)	-5%	36	23	5	$40,206	$56,950
			Greater Sacramento	1,084	1,036	(48)	-4%	158	110	22	$42,994	$61,402
			California	15,104	14,418	(686)	-5%	2,450	1,764	353	$42,182	$64,938
	17-3012	Electrical and Electronics Drafters	Nev-Placer	47	46	(1)	-2%	6	5	1	$38,064	$55,474
			Greater Sacramento	188	194	6	3%	21	27	5	$42,182	$61,402
			California	4,291	4,312	21	0%	522	543	109	$44,554	$68,806
	17-3013	Mechanical Drafters	Nev-Placer	61	65	4	7%	6	10	2	$40,394	$54,829
			Greater Sacramento	282	309	27	10%	28	55	11	$43,243	$58,448
			California	5,696	5,917	221	4%	657	878	176	$43,285	$66,248
	17-3019	Drafters, All Other	Nev-Placer	27	24	(3)	-11%	6	3	1	$38,750	$57,470
			Greater Sacramento	140	127	(13)	-9%	27	14	3	$39,374	$62,400
			California	2,589	2,311	(278)	-11%	552	274	55	$44,075	$60,070
Energy Systems Tech (TOP 094610)	17-3029	Engineering Technicians, Except Drafters, All Other	Nev-Placer	50	49	(1)	-2%	6	5	1	$49,213	$69,118
			Greater Sacramento	430	458	28	7%	44	72	14	$51,355	$74,090
			California	9,414	9,735	321	3%	988	1,309	262	$47,986	$80,122
	27-1021	Commercial and Industrial Designers	Nev-Placer	96	111	15	16%	16	31	6	$46,010	$55,890
			Greater Sacramento	304	341	37	12%	49	86	17	$41,184	$50,981
			California	7,679	8,151	472	6%	1,275	1,747	349	$44,470	$64,189
Welding Technology (TOP 0956, 095650)	51-4121	Welders, Cutters, Solderers, and Brazers	Nev-Placer	262	288	26	10%	36	62	12	$30,347	$40,394
			Greater Sacramento	1,245	1,336	91	7%	171	262	52	$31,408	$42,120
			California	26,839	27,438	599	2%	4,261	4,860	972	$29,453	$45,406
	51-4122	Welding, Soldering, and Brazing Machine Setters, Operators, and Tenders	Nev-Placer	21	26	5	24%	2	7	1	$29,286	$34,757
			Greater Sacramento	100	106	6	6%	16	22	4	$29,078	$36,899
			California	2,663	2,584	(79)	-3%	514	435	87	$28,101	$43,867
	17-3026	Industrial Engineering Technicians	Nev-Placer	51	57	6	12%	5	11	2	$38,085	$60,299
			Greater Sacramento	219	238	19	9%	22	41	8	$38,709	$64,064
			California	5,039	5,269	230	5%	552	782	156	$42,286	$62,566

Data source: EMSI Complete Employment - 2012.3

1e) Optional Additional Data: Comment on any other relevance to district goals, mission, values, strategies, etc., that your program provides that are not incorporated in the answers above. Consider, for example, contributions to diversity, campus climate, cultural enrichment, community ties, partnerships and service, etc. Include specific data and examples.

The Drafting and Engineering Support department faculty have taken a special interest in promoting career interest to the nontraditional population for our discipline. This inspired an effort to expand support to other disciplines on campus which share the same nontraditional demographics. As a result the DES faculty has been working closely with faculty from the CIS, Welding and Mechatronics departments and a core group of students to begin a "Women In Technology" club on the Rocklin Campus. The purpose of which is as follows:

a. Provide help exploring and succeeding in careers that are non-traditional for women.
b. Provide help to find scholarships available for non-traditional career choice.
c. Provide mentorship to help women to succeed in a non-traditional career choice.
d. Share experiences within and across non-traditional career choices.

Currently the DES student Instructional Assistant has organized meetings and information sessions to recruit and elect officers and charter the group as an official club.

The DES department faculty will be participating in the "Nontraditional Employment for Women" event that will be held on campus on April 18. The event will give the department a special opportunity to expose High School girls to the possibility of a career in the Drafting trades. The High School students will be given a tour of the facilities and will participate in a hands on project 3D modeling with the Solidworks CAD software and the 3D printer.

2) Currency: This category assesses the currency of program curricula as dictated by Title 5 and the currency of efforts in meeting accreditation standards as well as improving pedagogy and engaging in professional development.

2a) Curriculum: Considering the information provided on your Department Statistics Report (DSR), comment on the currency of your program's curricula. If your course currency is below 100%, describe why this is and your department's specific plans to remedy this problem. Please describe your process for evaluating and revising curriculum, including the use of SLOs.

Curriculum Review was completed at 100% in April of 2011.
The DES staff continues to review SLO data and gather Advisory Committee feedback as well as feedback from industry worksite visitations to review curriculum content. Minor problem set adjustment regularly takes place as a result of this data. Major adjustments in curriculum have not been warranted since curriculum review was completed.

2b) Student Learning Outcomes Assessment: Comment on your program's progress in assessment of SLOs, analysis of results, and improvements/changes made to the program. Please provide specific data and analysis in the space provided.

The DES department has identified four program SLOs that have been vetted with faculty, students, the industry advisory committee, and division administration. The SLOs are reviewed at each advisory committee and in all discussions and/or meetings regarding curriculum. Major assessments are ongoing in all courses and results are analyzed on a yearly basis. Some minor adjustments in course assignments and assessment methods have been implemented as a result of the data collected.

The data generated by the DSR is inaccurate. Currently the DES program has 11 classes in which 49 individual assessments are being monitored. We have 4 outcomes, 11 assessment methods, 86 results and 39 actions.

Program Outcomes:	Outcomes	Assessments	Results	Actions	Follow Ups
	4	7	11	9	0

2c) Professional development: Describe how your department's planned activities and professional development efforts serve to improve teaching, learning and scholarship. Please be sure to include flex activities, departmental meetings and activities, conferences, and the like.

The DES Industry Advisory Committee has met on an annual basis and will increase to meeting twice per year effective this semester. The Advisory Committee discusses and approves the program SLOs and strategies of implementation of the SLOs. The Committee advises the Faculty of the currency and relevancy of the curriculum and advises of needed changes in curriculum topics, technical skills, hardware and technology issues, software requirements and general employability skills needed by our students upon their completion. Recent changes in the Architectural curriculum were a direct result of Advisory Committee input. The upgrade to the DES lab is the result of Advisory committee's direction that students must be able to perform cross platform manipulation of vector graphics data.

AutoDesk University is the most advanced software training in the world for the AutoDesk product line of software. There are more than 650 workshops, lectures, and classes available for every drafting, and design discipline and application of the most highly regarded industry standard drafting, design and engineering softwares. Ed Mojica and Alison Salome attended AutoDesk University in November/December 2010 to stay current in various industry standard AutoDesk software applications. They each attended over 12 classes, workshops and hands on labs. Both instructors were able to implement the skills and technologies attained into the DES curriculum and classroom instruction.
Alison Salome attended the AutoDesk University event again in November 2012 in preparation for the current hardware and software upgrade to the V227 lab. This event was instrumental in the setup of new lab hardware and software for the Spring 2013 semester. The skills attained are being incorporated directly into the curriculum to assure cutting edge technique instruction for students.

Fall 2009, Spring 2010, Fall 2011, Fall 2012 and Spring 2013 DES department meetings contained several segments of AutoCAD software training for PT faculty from the DES and Engineering departments.

Alison Salome attended the CAD Americas workshops in September 2012 in Daly City California to gain current software and industry trend information regarding needed technical skills for gainful employment in the Drafting and Design fields.

The May 21, 2011 workshops hosted by the DES faculty were also an opportunity for DES faculty to learn from each other in breakout sessions and demonstrations.

Alison Salome attended the CTE retreat in February 2012 where strategies to improve CTE core indicators were presented. This session was used to begin planning a DES new student orientation session designed to boost entry level student success and retention. We plan to implement that orientation in Fall of 2013.

DES faculty must also present curriculum that reflects current industry standards in the drafting disciplines. In the Fall of 2011 the DES department began delivering Geometric Dimensioning and Tolerancing instruction that is in full compliance to the current American Society of Mechanical Engineers (ASME) published standards for dimensioning and tolerancing mechanical drawings. The Architectural courses also began delivering instruction that conforms to the new statewide building code.

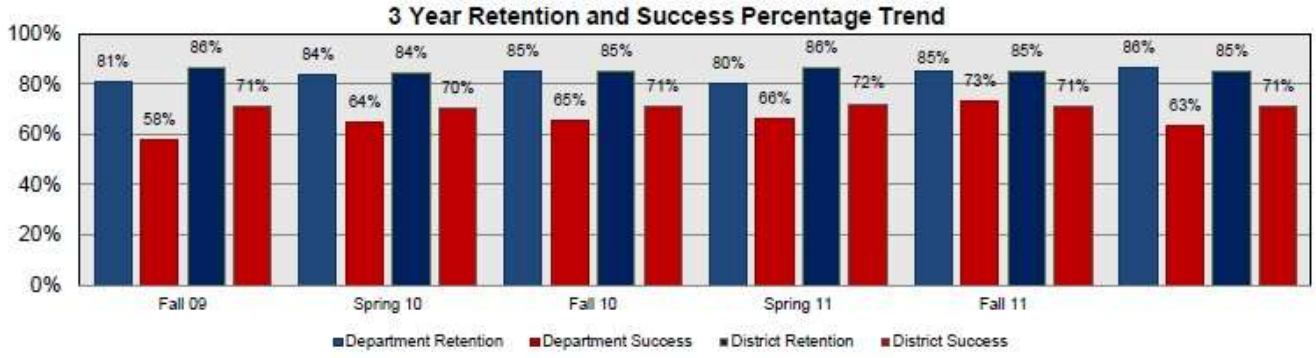
Regular discussion at DES Advisory Committee meetings, department meetings, CTE meetings, and on internship visits examine current DES practices for instruction, curriculum, and implementation of technology. Frequent adjustments are made as a result of these discussions. For example: New techniques for instructing the development 2 dimensional data from 3 dimensional modeling will be implemented in Spring 2013as a result of these discussions.

2d) Optional Additional Data: Enter additional data here that you believe to be an indicator of your program's effectiveness and explain why.

Since Fall 2009, 33 students have been placed in the workforce as interns and/or permanent employees in the Design Drafting field. These students are earning between 12 and 30 dollars per hour, many full time and many with benefits packages. Feedback from those employers who employ our students has indicated that our students have a highly trained and highly desirable skillset. Several sites call us to recruit students through the internship program. Streamline Engineering in Granite Bay, in particular has commented that our students come to them with skills far superior to students from Los Rios Community College District and the local Technical Schools.

3) <u>Effectiveness</u>: This section assesses the effectiveness of the program in light of traditional measurements.

3a) Retention and Success: Identify and explain the trends in your program's data. Address separately the data for on ground and on-line course. Comment on the significance of the trends as well as the challenges experienced within the program. If you see a need to improve the statistical trends, outline a plan that will achieve the changes you are seeking. Please refer specifically to the data in your Department Statistics Report, as supplied by the Research and Planning Office, in supplying your answer.

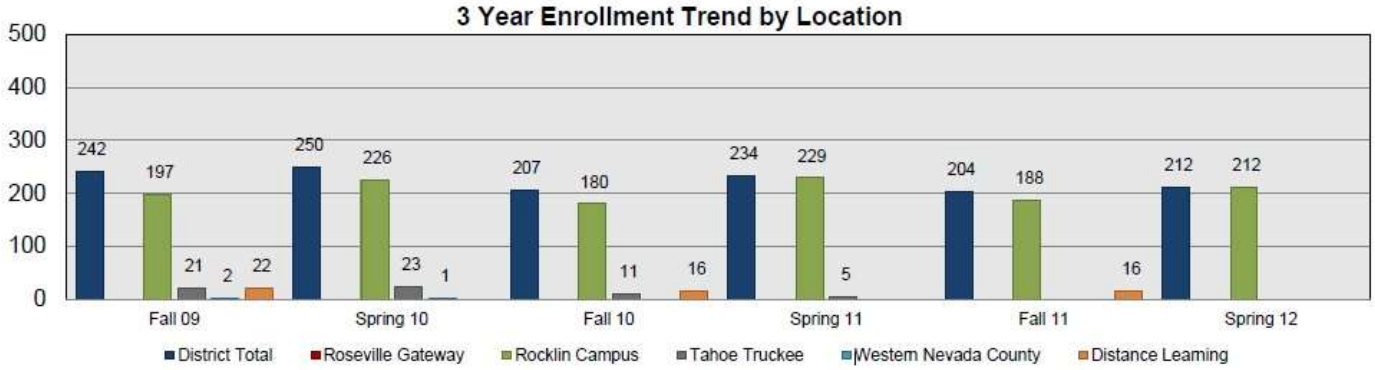


Drafting and Engineering Support Students have retention rates that closely mirror the district rates falling slightly below in Fall 2009 and Spring 2011 and slightly above in Spring 2012. The DES department is striving to improve retention rates by proactively improving our course scheduling with continuous enrollment as a primary scheduling factor. Section cuts have hindered this process as some courses can only be offered once per year. This affects student ability to continue in the degree/certificate pattern without lapse. Additionally, faculty is striving to improve student awareness of the scheduling patterns so that students can establish an ongoing schedule to meet certificate/degree requirements. Degree and certificate patterns were recently adjusted to address students' ability to navigate the degree and certificate patterns in a progressive manner without lapse of enrollment. Each class is exposed repeatedly to the certificate and degree requirements and students are encouraged to complete the next course to obtain certificates.

Drafting and Engineering Support Students have success rates that average slightly below district averages but were higher in Fall of 2011. Drafting and Engineering Support curriculum is a rigorous curriculum that is rich in math and engineering content. Students must show a much greater attention to details, calculations, precision, and technical execution of skills than in most disciplines. For many students these courses are a higher level of this type of rigor than they are accustomed to. As such, the success rates will naturally be lower than overall averages. However, the DES averages are higher than those in the most closely related disciplines of Math and Engineering.

DES faculty and staff are working to improve success rates. We are developing and incorporating supplemental instructional materials such as lecture videos, how to videos and department wide procedural standards to assist students who may miss a lecture or who need to see instruction repeated. A concerted effort to provide better lab help to students will also increase student success. A better effort to identify students who might be available to tutor is being made. Having an additional 12 hours of student Instructional Assistant time would also help to support students who may be in need of extra help.

3b) Enrollment Trends: Identify and explain the enrollment trends in your program's data. Address separately the data for on ground, on-line, and enrollment at the various centers. Comment on the significance of the trends as well as the challenges experienced within the program. If you see a need to improve the statistical trends, outline a plan that will achieve the changes you are seeking. If applicable, comment on both the past performance and the future direction of the program as a whole as well as by location and mode of delivery. Please refer specifically to the data in your Department Statistics Report, as provided by the Research and Planning Office, in supplying your answer.



The Drafting and Engineering Support program is aware of less than desirable enrollment trends. The single DES 1 course offering that was offered through Truckee Tahoe campus was discontinued beginning Fall 2011. The course was being held on the local High School campus and enrollment was hindered by restrictive high school dates and times and the perception by adults that is was a high school course. The online enrollment reflects the difficulty and rigor of the single DES 12 online course. The course is a certificate (but not degree) requirement and is also available to industry partners who would like the training to improve their current workplace skills. The online platform is very unfamiliar to the majority of DES students. We would eventually like to change the format to a hybrid course that has some land classes in the hopes of improving enrollment.

We are working with our CTE Career Educational Liaison (CEL) to develop marketing materials and a marketing strategy to increase enrollment in the DES 10, 11, 12, and 22 courses which we are making available to industry professionals. Our DES staff and our CEL is also going to be making an increased marketing and recruitment campaign amongst the local High Schools to improve enrollment in the DES 1 and 20 courses.

We also have plans to try to establish relationships with the Engineering departments at local 4 year schools to expose their students to the possibility of a career in DES. This might be especially appealing to students who begin an engineering degree but find themselves unsuccessful (usually due to the high math requirements).

The DES department is making special efforts to recruit from our non-traditional populations on our campus and through the local High Schools. (See section 1E)

Recently, the DES and Mechatronics department have been working together to make the DES 11 class available to MECH students. Currently almost one third of the enrollments in the Spring 2013 DES 11 class are Mechatronics students.

Student feedback shows that the newer degree path, which is easier to navigate, is increasing students' willingness to commit to the program.

The DES department is exploring the idea of reducing the enrollment cap in the DES 40 (capstone class). The basis for the change would be to increase the amount of hands on work that students could do out in the community. We would like to move the assignments into a more project based outcome course that would require the group do certain activities at regional industry partner locations. The side effect of this change would be an increased fill rate for that course.

It would be very helpful to have an additional Full Time Faculty to help generate interest in the program both to incoming freshmen and to interested industry partners. The current full time faculty (1) is taxed with managing and coordinating all aspects of the program, department chair duties plus the management, maintenance, and all scheduling of the interdisciplinary CAD Lab with all of its very special needs. She would very much like to have more opportunity to work on recruitment and efforts to give the department a more visible presence on campus and in the community.

3c) Productivity: Comment on how the program contributes to overall district productivity. Comment on the significance of the trends as well as the challenges experienced within the program. If you believe the statistical trends need improvement, outline a plan that will achieve the changes you are seeking.

The DES department is a small highly specialized department with small facilities. The DES department is not able to compete with district averages in the productivity category. As discussed in the previous section the DES department is making great effort to improve enrollment. This will directly affect the productivity numbers and should improve our overall scores.

The DES program contributes as a specialty program that is educating highly skilled professionals to the drafting and engineering support and manufacturing sectors in our region.

The FTEF has been adversely affected by class reductions due to state budgetary issues over the past few years.

DES productivity is largely affected by our small facilities. The DES lab can only accommodate 25 students. Our lecture facility can accommodate up to 30 and during our day offerings we often accommodate 30. This is possible only because great effort has been made to run the lab in a way that students make appointment times to do their lab work. This allows the department to run just one lab and maximize the number of students that can be served daily. Thus, costs are kept considerably lower than similar programs at nearby community colleges who maintain several CAD labs at large expense.

3d) Analysis and Planning: Referring to your ePar Report of Goals, Strategies, Actions, and your assessment of SLOs, comment on how your program plans to maintain or increase its effectiveness and whether it has taken actions to do so.

Within our ePar we have identified four department goals and developed strategies for each. Each course covers or reinforces all of the four goals. Assessments are ongoing in each course and minor curriculum and/or teaching strategies have been modified as a result of the collected data. We continually update goals, strategies and actions on a regular basis in an effort to maintain and improve effectiveness.

As stated earlier, in the past two years new Architecture curriculum has been developed and new degree paths have been established to correlate with our department SLOs. The ePar has been instrumental in tracking our goals, strategies and actions to make those advancements.

The department plans to continue meeting with industry leaders through the department's Advisory Committee, identifying current trends and needs within the drafting and engineering support industry. In response the department will adjust SLOs, course offerings and curriculum as needed.

3e) Optional Additional Data: Enter additional data here that you believe to be an indicator of your program's effectiveness and explain why.

The department has plans to develop an informational orientation for all incoming enrollees to increase our departmental effectiveness. This orientation will target incoming DES students and will be designed specifically to increase success and retention by better preparing incoming students for the rigorous curriculum and heightening awareness of the many resources that the department has put into place to help students succeed. This new orientation will be implemented in Fall of 2013.

4) <u>Resources</u>: This category assesses the adequacy of current resources available to the program and describes and justifies the resources required to achieve planning goals by relating program needs to the assessments above.(Refer to the bottom row of your DSR in your response to this category. You may include budget information if you have it.)

Budget Information EST-DES	Account	2011 Actuals	2012 Actuals	2013 Adopted
95300	1000	$ 150,657.49		
	2000	$ 1,168.75		
	3000	$ 27,654.42		
	4000	$ 11,204.58		
	5000	$ 901.54		
	6000			
	7000			
	8000			
	Total	$ 191,586.78		

4a) Please describe the future direction and goals of your program for the next three years in terms of sustaining or improving program effectiveness, relevance, and currency. Please include any analysis of relevant assessment data noted above.

The DES department is determined to become a highly sought after specialty training program. Our goal is to provide highly skilled personnel to the Drafting, Design, Manufacturing and Building trades sectors in our region. To do so the department must provide experienced highly trained faculty that can present current and relevant instruction in the fast paced, technology driven industry. Additional full time staff is needed, especially as enrollment improves in light of our diligent efforts outlined in section 3B.

We need to be able to increase recruitment efforts both internally and externally. We also need to increase the visibility of our program on campus and in the community. We will use campus events to reach within Sierra College. The department is determined to increase marketing materials and increase campaigns to High School, Industry professionals and within Sierra College.

Our students need additional resources and support. We will institute a new student orientation to bolster student success and retention. Additional student help for struggling students is also needed to improve success and retention.

The department would also like to look into providing services to help students make connections to available industry certifications, such as software certifications and skillset certifications that are available through the American Society of Mechanical Engineers (this is also in line with CTE goals). While theses certifications are not mandatory to work in the field, they certainly would add to the marketability of our students. The department does not believe that this can be accomplished with current staffing levels.

4b) Equipment and Technology: Comment on the adequacy of the program's equipment and technology funding level for the District as well as specific sites. Include a projection of equipment and technology needs for the next three years as well as a justification for needs.

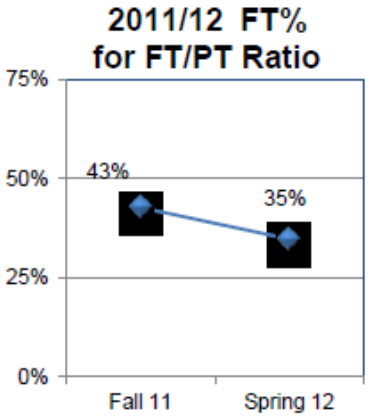
The DES department is committed to providing cutting edge technology to keep our student's experience current and relevant to industry trends.

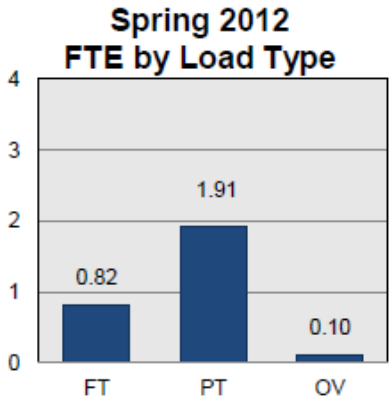
The DES lab was just upgraded and the hardware should sustain the program through the next four years. However, hardware needs are driven by software requirements, therefore, additional hardware upgrades may be called for should the software requirements exceed the hardware specifications currently in place. The new computer systems are upgradeable and should provide room for expansion should the need arise over the next four years. As CAD workstations are at the top of current technologies it would be prudent to develop through CTE an effective lab replacement and roll down schedule for the CAD lab computers.

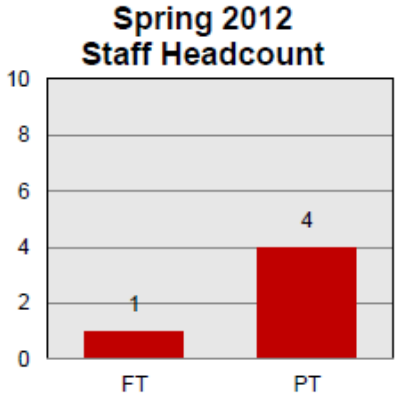
Last year changes were made in the way that the CAD software is purchased. This caused a one-time investment to purchase permanent seats of the AutoDesk softwares that are used. In the long term, however the yearly cost to keep our subscription current (which entitles us to all future upgrades) will be the only expense for that software and has greatly reduced our yearly operating costs for software.

The CAD lab is in need of a projector upgrade and will be requested in the next requisition cycle through CTE. The current projector is not satisfactory for displaying CAD applications.

4c) Staffing: Comment on the adequacy of your program's faculty, classified, and student help staffing levels for the overall District as well as specific sites. Include a projection of staffing needs for the next three years and justification for any increases.







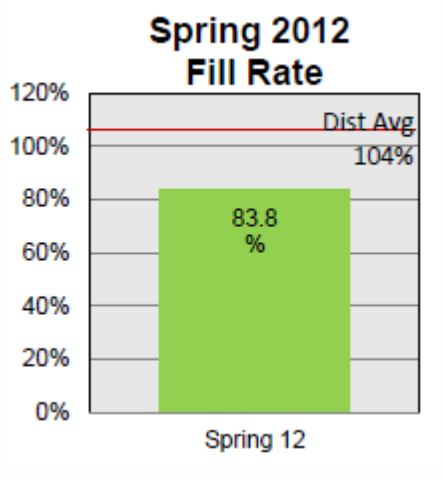
The department is in need of additional Full time faculty. The ratio has been consistently well under 50% for the past five years. If an additional Full time faculty member is not hired the percentage will drop due to the renewal of sections that were previously reduced because of the state budget. Additionally, the number will drop due to the increased load that was put upon the current Full time faculty when release time for department chair duties was eliminated.

In addition to the commonly expected teaching duties, the current (one) full time faculty is tasked with all department chair duties, all CTE responsibilities, all curriculum review and revisions, scheduling of staff, section offerings, educational requirements maintenance and professional development for staff. Additionally, the highly specialized CAD lab requires approximately 3.5 hours per week in routine maintenance and troubleshooting, lab attendance systems, hardware, software, student profile issues etc. In addition to that, each year an additional 60 hours of time is used for hardware and software installations and upgrades, acquisitioning lab hardware, software, maintaining service contracts and subscriptions for software etc.

The department currently employs one student assistant at approximately 12 hours per week. The student is currently helping with numerous tasks that assist our full time and part time staff and give support to students in the CAD lab. The department would like to have an additional 12 hours per week of student help to increase student success by giving more lab support to struggling students.

The department currently works with a pool of 6 part-time faculty to fill specialty class offerings. The department is challenged to find appropriate instructors who have the vital skillset needed to deliver our highly specialized curriculum. The department continues to work to recruit individuals with the special skills that are needed.

4d) Facilities: Comment on the program's fill rate and the adequacy of the facilities for the District as well as specific sites. Include a projection of facility needs for the next three years as well as a justification for any increases.



The DES department recognizes that the fill rates have been below the district averages and we are working hard to address enrollment trends as outlined in detail in section 3B.

Additional outreach to High Schools and industry members seeking additional training will increase our fill rates. The addition of entry level classes will help increase fill rate in the higher level classes which tend to have lower enrollment.

In light of the current enrollment trends the department feels that our facilities are adequate for the next three years as we grow.

5) Summary/Closing

5a) Evaluate the program's strengths, weaknesses, opportunities, and challenges.

STRENGTHS: Our faculty is very experienced and they all bring their relevant industry experiences into the classroom in a way that is highly effective. DES curriculum is current and relevant to industry needs. Our students have noted that our entire Faculty is very approachable and eager to help students in any way that they can. Our new program degree path is easy to navigate and reflects current industry needs. Industry employers recognize that our students are well prepared and are highly skilled.

WEAKNESSES: Enrollment and fill rates are less than desirable. There is a need for better PR to generate enrollment and improve fill rates. There is insufficient staffing to accommodate the management of the department and the interdepartmental CAD lab. Success and Retention rates need improvement.

OPPORTUNITIES: Cross pollination with Mechatronics, Welding and Construction to possibly develop interdisciplinary certificates. Increase outreach through DES 40 class into manufacturing/building resources in local region. Continue to improve Architectural instruction techniques, and improve student support resources for Architecture.

CHALLENGES: The department's rigorous curriculum challenges student retention and success, and students needing extra time have limited lab access. The department is challenged to find appropriate instructors who have the vital skillset needed to deliver our highly specialized curriculum. The enrollment and fill rate issues make it a challenge to offer all courses each semester and some upper level courses currently can only be offered once per year.

5b) Please provide any other information the Program Review Committee should consider that was not expressed in questions above.

The DES department has experienced shrinking pains over the past 6 years. Previously the department had two full time faculty members. The department's heavily technical curriculum requires constant professional development. The cutting edge technology requires intensive attention to hardware and software needs. The rigor of the curriculum demands high levels of individual student attention. The dual Architectural and Mechanical curriculum requires staff with specialty skills for all classes.

Although sections have been reduced due to budgetary issues, all of the above is still as true and as valid as it was when there were two full time faculty. Add to this the added responsibilities of tighter compliance to attendance laws for the lab which has added hours of additional workload, and the recently required SLO development and need for constant SLO reporting. These factors are all taking its toll on this small department's ability to grow and thrive.

5c) How has the author of this report integrated the views and perspectives of those who have interests in the future of this program, e.g. full time and part time faculty, educational administrators, instructional assistants, classified staff, and students at Rocklin, Roseville Gateway, NCC and/or Tahoe Truckee?

Advisory committee members, students, part time faculty, and the Division Dean have had opportunity to read, comment and suggest input for this report. Their views and perspectives via informal and formal feedback were taken into account when developing the final report

So you want me to write a report on how I hold up the piano, while I am holding up the piano…?