

PROGRAM REVIEW: DRAFTING TECHNICIAN &
SURVEY TECHNICIAN/CIVIL DRAFTING TECHNICIAN

FALL 2013

1.1 Introduction

The Drafting program at SCC has been in existence since the school's founding. The early program curriculum emphasized manual or hand drafting skills. Since the prevailing trend in industry has included a shift to utilizing computer technology, the Drafting Technician (DT) program has included curriculum that specifically addresses the application of computer aided drafting and design technology. The current program includes courses in both two dimensional and three dimensional drafting concepts. In the Survey Technician/Civil Drafting Technician program, students focus more on civil drafting and design concepts, and also learn surveying skills by using instruments common in the field.

The mission of the drafting program is to provide students with the knowledge and skills necessary to qualify for employment as a drafting technician primarily in the fields of mechanical, electrical, civil and/or architectural drafting. However, drafting workplace skills are used in other non-traditional drafting fields (For example, AutoCAD is used to create figures in geological reports). To accomplish these goals, drafting instructors, who have worked in these specific specialty fields, teach current and relevant concepts, techniques, and practices.

Currently, the drafting program has two options to choose from, the Drafting Technician and the Survey Technician/Civil drafting Technician. The Drafting Technician program description outlines its intent of providing students with the basic beginning skills that are common to the four major fields of drafting. With this diverse background, students are employable in not just one particular field of drafting, but in several fields. This means that graduates are able to satisfy the employers need to have a worker who could can read and reproduce many types of engineering documents.

The Survey Technician/Civil Drafting Technician major offers specific hands on training in surveying. The surveying principals are then paired with more advanced civil drafting theory which gives the student a better preparation for employment in surveying projects out in the field and/or create civil drawings back in the office. Both majors offer the AS degree and /or the certificate.

Additionally, the drafting program provides those drafters, who are already employed, an opportunity to improve and expand their skills. Historically, computer aided drafting (CAD) was a skill taught on the job as companies transitioned from manual drafting. At that time, people never learned CAD in a systematic and comprehensive way. So by enrolling in SCC

1.1 Introduction (cont.)

Drafting Technology classes, those individuals can focus on those specific classes to update their CAD skill sets and that fit their specialized needs.

New developments within the program include the addition of a new 3D prototyping printer. Students learn the engineering design concepts, create that design on paper, and are then able to print a dimensional prototype in which to test the feasibility of the design. The students can then practice and perfect prototypes, using an industry recognized Design Process:

- Identification of design problem
- Problem-solving concepts and ideas
- Analogize and design solutions
- Model design(s) for prototypes
- Analyze and test models
- Production and working drawings

By incorporating working models in 3-Dimensions, students are more engaged in the process and have a better understanding of real world techniques.

A transfer degree has been not established as this major directs itself to job employment at the completion of the program. However, since drafting skills are a necessary for many professions, students can pursue further higher level education in fields that include engineering, aerospace technology, industrial design, architectural design, and civil planning.

1.2 Relationship to College Mission and Strategic Goals.

The drafting program at Solano Community College has set its goals and priorities on educating students from the local community, as well as from the surrounding areas, to be trained for a variety of jobs in the drafting field. We strive to meet the needs of student who require new job skills and also to those who wish to improve existing skills.

1.2 Relationship to College Mission and Strategic Goals. (cont.)

Table 1. SCC’s Strategic Directions and Goals

| <i>Goal 1: Foster Excellence in Learning</i> | <i>Program Evidence</i> |
|--|---|
| <p><i>Obj. 1.1 Create an environment that is conducive to student learning.</i></p> | <p>Courses are offered day, evening, and online. Students are able to select classes that fit into their schedule and particular learning style. Additionally, the courses are taught by professionals who have diverse and first-hand industry experience that enables them to provide job specific information regarding the major area of drafting: architectural, civil, electrical, and mechanical drafting. The Blueprint reading course (DRFT079) was offered at the Vacaville Center to accommodate students who had difficulty with transportation.</p> |
| <p><i>Obj. 1.2 Create an environment that supports quality teaching.</i></p> | <p>With the assistance for the members of the Advisory Committee, we have expanded the current class content to include the Survey Technician/Civil Drafting Technician program. The department has drafting and design projects for the students to expand their skills. A diverse staff specializes in specific fields of drafting, added technical application of content and skills to improve student training needs.</p> |
| <p><i>Obj. 1.3 Optimize student performance on Institutional Core Competencies</i></p> | <p>Regular review of SLO assessments, along with student evaluations has helped the faculty to better understand specific student needs. For the struggling student, tutoring services are available. When funding is available, the addition of extra lab hours has helped students to gain mastery over specific concepts and skills. Utilization of existing technology, for example MySolano and SolanOnline eCompanions, to communicate and offer collaboration with students keep informed and up-to-date with class assignments, due dates, and assessments.</p> |

1.2 Relationship to College Mission and Strategic Goals. (cont.)

Table 1. SCC’s Strategic Directions and Goals (cont.)

| <i>Goal 2: Maximize Student Access & Success</i> | <i>Program Evidence</i> |
|---|---|
| <i>Obj. 2.1 Identify and provide appropriate support for underprepared students</i> | Referring students to campus services has provided support for students who struggle with course requirement. Tutoring services for math, drafting, English fill the gap for many of the drafting students who because of various learning difficulties may need to have some review of past basic skills content in order for the student to be successful in completing specific course content. Tutoring is also available, and, through the use of grant money, extra lab hours were added to the schedule during the 2012-2013 school year. |
| <i>Obj. 2.2 Update and strengthen career/technical curricula</i> | All courses within the Drafting Technology and Survey Technician/Civil Drafting Technology major are taught using the most current industry standard versions of CAD software. Textbook selections are updated yearly so as to keep pace with the changes in industry. In the classroom, students use computer work stations, plotters, and printers similar to those that are used in industry today. A 3D printer provides the opportunity for students to see first-hand and use current technology to examine the engineering process from drawing conception to actual printed prototype models. |
| <i>Obj. 2.3 Identify and provide appropriate support for transfer students</i> | N/A |
| <i>Obj. 2.4 Improve student access to college facilities and services to students</i> | We try to offer classes at a variety of times (and online), however cutbacks (and/or a shortage of qualified instructors) have caused some limitations in this area. Students have access to all basic college wide services. |
| <i>Obj. 2.5 Develop and implement an effective Enrollment Management Plan</i> | Because of relatively recent (since fall 2012) administration policies to remove most scheduling and class cancellation decisions from departmental level coordinators and faculty, individual departments have little, or no, control over this matter. |

1.2 Relationship to College Mission and Strategic Goals. (cont.)

Table 1. SCC’s Strategic Directions and Goals (cont.)

| <i>Goal 3: Strengthen Community Connections</i> | <i>Program Evidence</i> |
|---|--|
| <i>Obj. 3.1 Respond to community needs</i> | <p>The Survey Technician/Civil Drafting Technology major has helped to address the current and future needs of a waning supply of individuals trained in the area of Surveying as reported to the Advisory Committee by Stan Schram, Solano County Surveyor. The Drafting Technician program, likewise is responding to the need for more trained personnel for local businesses looking for qualified drafters. Businesses such as CableCom, Blue Mountain Homes, and TEK Systems have been contacting the Drafting Department looking for drafting students and graduates to employ (see Appendix 1).</p> |
| <i>Obj. 3.2 Expand ties to the community</i> | <p>Program faculty initiate and/or participate in many outreach activities that help connect the community and prospective students to what is going on in the drafting program:</p> <ul style="list-style-type: none"> • The Career Education Fair held in spring 2011 and 2012, brought students and parents into the classroom to experience what drafting is with hands on activities. • STEM workshops – Held in January. This event brings middle school girls to the SCC campus for hands on experience in different CTE fields. Drafting sponsored CAD classes. • Annual Advisory Committee meetings keep staff abreast to changes in the field as well as job availability. • Drafting Fest is a drafting competition held on the SCC campus for local high school drafting students. Although we have not been able to hold the competition the past few years, if funding is available, we hope to continue the event in spring 2014. |

1.2 Relationship to College Mission and Strategic Goals. (cont.)

Table 1. SCC’s Strategic Directions and Goals (cont.)

| Goal 4: Optimize Resources | Program Evidence |
|---|--|
| Obj. 4.1 Develop and manage resources to support institutional effectiveness | Use and incorporate Perkins funding for student needs. In 2012-2013 grant funding was available to hire a student tutor to work in the drafting lab for 6-hours per week. |
| Obj. 4.2 Maximize organization efficiency and effectiveness | NA |
| Obj. 4.3 Maintain up-to-date technology to support the curriculum and business functions. | Drafting department faculty carry out regular curriculum review; updating class material to reflect industry needs, removing outdated classes and topics and adding new courses and programs based on industry and advisory committee recommendations. |

1.3 Enrollment.

The number of students enrolled remains fairly constant at about 102 students per semester on average. The number of sections offered have decreased from 12-13 to 7-9.

Draft – Number of sections offered

| Fall 2008 | Spring 2009 | Fall 2009 | Spring 2010 | Fall 2010 | Spring 2011 | Fall 2011 | Spring 2012 | Fall 2012 | Spring 2013 |
|-----------|-------------|-----------|-------------|-----------|-------------|-----------|-------------|-----------|-------------|
| 13 | 12 | 13 | 10 | 10 | 10 | 9 | 8 | 9 | 7 |

Draft – Number of students enrolled

| Fall 2008 | Spring 2009 | Fall 2009 | Spring 2010 | Fall 2010 | Spring 2011 | Fall 2011 | Spring 2012 | Fall 2012 | Spring 2013 |
|-----------|-------------|-----------|-------------|-----------|-------------|-----------|-------------|-----------|-------------|
| 105 | 110 | 130 | 86 | 100 | 105 | 99 | 94 | 103 | 90 |

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Solano Community College student enrollment

| Fall 2008 | Spring 2009 | Fall 2009 | Spring 2010 | Fall 2010 | Spring 2011 | Fall 2011 | Spring 2012 | Fall 2012 | Spring 2013 |
|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Student Count | Student Count | Student Count | Student Count | Student Count | Student Count | Student Count | Student Count | Student Count | Student Count |
| 11,850 | 12,155 | 12,261 | 11,994 | 11,836 | 11,965 | 11,033 | 10,814 | 9,595 | 9,739 |

.0088 .009 .007 .0106 .0084 .0088 .009 .0087 .0113 .0092

Ave .9%

1.3 Enrollment. (cont.)

Draft – FTE

| Fall 2008 | Spring 2009 | Fall 2009 | Spring 2010 | Fall 2010 | Spring 2011 | Fall 2011 | Spring 2012 | Fall 2012 | Spring 2013 |
|-----------|-------------|-----------|-------------|-----------|-------------|-----------|-------------|-----------|-------------|
| 25.06 | 26.29 | 27.41 | 19.50 | 22.91 | 25.03 | 25.27 | 21.06 | 24.86 | 24.60 |

Solano Community College - FTE

| Fall 2008 | Spring 2009 | Fall 2009 | Spring 2010 | Fall 2010 | Spring 2011 | Fall 2011 | Spring 2011 | Fall 2012 | Spring 2013 |
|------------|-------------|------------|-------------|------------|-------------|------------|-------------|------------|-------------|
| Total FTES | Total FTES | Total FTES | Total FTES | Total FTES | Total FTES | Total FTES | Total FTES | Total FTES | Total FTES |
| 4,084.43 | 4,246.24 | 4,429.28 | 4,286.61 | 4,350.09 | 4,293.80 | 4,030.47 | 4,293.80 | 3,553.09 | 3,640.85 |

.0061 .0062 .0062 .0045 .0053 .0058 .0063 .0049 .007 .0073

Ave .6%

Draft – WSCH

| Fall 2008 | Spring 2009 | Fall 2009 | Spring 2010 | Fall 2010 | Spring 2011 | Fall 2011 | Spring 2012 | Fall 2012 | Spring 2013 |
|-----------|-------------|-----------|-------------|-----------|-------------|-----------|-------------|-----------|-------------|
| 752 | 789 | 822 | 585 | 687 | 751 | 758 | 632 | 746 | 738 |

We believe the decline in enrollment in Drafting Technology department since spring 2010 has several causes:

- The statewide economic downturn, which caused a state wide funding cut to California community colleges and SCC.
- A statewide tuition increase from \$36 per unit to \$46 per unit.
- Administration scheduling policies that deemphasizes scheduling and class cancellation decisions on a departmental level.

1.4 Population Served.

The following data was obtained from Institutional Research and Planning.

Enrollment by Gender

| Semester | Female in % | Male in % | Not Reported |
|-------------|-------------|-----------|--------------|
| Spring 2009 | 31 | 65 | 4 |
| Fall 2009 | 25 | 72 | 2 |
| Spring 2010 | 22 | 74 | 3 |
| Fall 2010 | 23 | 71 | 6 |
| Spring 2011 | 20 | 79 | 1 |
| Fall 2011 | 29 | 69 | 1 |
| Spring 2012 | 31 | 69 | 0 |
| Fall 2012 | 19 | 80 | 0 |
| Spring 2013 | 16 | 83 | 1 |

1.4 Population Served. (cont.)

The trend clearly indicates a greater number of males enrolled in the drafting major by a 1:4 ratio. The drafting profession traditionally has employed more males than females. To encourage and increase the number of females enrolling, the department has participated in the Women's Career Day. Groups of middle school female students came and participated in hands on activities that they might experience on the job as a drafter. There was an enthusiastic response from the group.

However, there is some anecdotal evidence that female students are unwilling to enroll in night drafting classes because of facility deficiencies. Faculty have recently heard a few female students say that they will not enroll in evening classes out of fear of walking in the dark to the remote bathrooms, and because of the remote location of the parking lots from the drafting classrooms. The timing of the reduction (by percentage) of females to males, falls into the timeframe when drafting classes were moved from building 1300 and 1800A, to building 1800B at a more remote location. Although the extent of this problem is not clear, this could be a factor in why enrollment among females has declined in recent years.

However, it can also be hypothesized that an effort to promote classes, like Blueprint Reading (DRFT79) to other departments, especially welding (one that carries a significantly higher proportion of males to females) could also be adding to this trend.

Enrollment by Age

| Semester | Less than 18 in % | 18-20 in % | 20-30 in % | Over 30 in % | Other |
|-------------|-------------------|------------|------------|--------------|-------|
| Spring 2009 | 8 | 15 | 37 | 39 | 1 |
| Fall 2009 | 12 | 13 | 36 | 39 | 0 |
| Spring 2010 | 16 | 16 | 40 | 28 | 0 |
| Fall 2010 | 20 | 16 | 32 | 32 | 0 |
| Spring 2011 | 12 | 15 | 44 | 29 | 0 |
| Fall 2011 | 13 | 17 | 44 | 26 | 0 |
| Spring 2012 | 13 | 17 | 43 | 28 | 0 |
| Fall 2012 | 17 | 20 | 40 | 24 | 0 |
| Spring 2013 | 7 | 21 | 40 | 32 | 0 |

From the data collected, the trends indicate a shift with less student enrollment from the 20-30 year old group to a greater enrollment for the 18 to 20 year old group. This could be the result of using new brochures to publicize the articulation and transition options available to high school students. (see Appendix 1A, 1B, 1C)

1.4 Population Served. (cont.)

Enrollment by Ethnicity

| Semester | Am. Indian or Alas in % | Asian Or Pac Island in % | Black Non-Hispanic in % | Hispanic in % | White Non-Hispanic in % | Other in % |
|-------------|-------------------------|--------------------------|-------------------------|---------------|-------------------------|------------|
| Spring 2009 | 0 | 16 | 9 | 24 | 36 | 14 |
| Fall 2009 | 1 | 22 | 13 | 13 | 33 | 18 |
| Spring 2010 | 0 | 26 | 9 | 13 | 35 | 17 |
| Fall 2010 | 1 | 15 | 13 | 19 | 38 | 14 |
| Spring 2011 | 0 | 11 | 9 | 11 | 40 | 29 |
| Fall 2011 | 0 | 7 | 9 | 22 | 45 | 16 |
| Spring 2012 | 2 | 13 | 14 | 14 | 39 | 18 |
| Fall 2012 | 2 | 11 | 14 | 26 | 35 | 13 |
| Spring 2013 | 2 | 13 | 10 | 22 | 43 | 9 |

The ethnic diversity within the Drafting program parallels the ethnic diversity of the college as a whole.

The past program review did not discuss the population served by the program with respect to gender, age, and ethnicity nor were there any reasons proposed for any trends observed relating to enrollment.

1.5 Status of Progress toward Goals and Recommendations.

Table 2. Educational Master Plan

| <i>Educational Master Plan</i> | <i>Status</i> |
|--|---|
| 1. Hire new full time instructor for the Survey Technician/Civil drafting Technician | Not completed due to budget limitations |
| 2. Job placements | Completed as requests from employers come into the department they are passed on to students by e-mail, announcement in class, and classroom posting (see Appendix 2) |
| 3. Drafting degrees and certificates | Completed a review of each of the 2 specialties in the major with specific requirements for each listed in the course catalogue. |
| 4. Continuation of "2+2" with the high schools in Solano County | In process- The articulation agreement is to be completed by Spring 2013 (see Appendix 1A, 1B, 1C) |

1.5 Status of Progress toward Goals and Recommendations. (cont.)

Table 2. Educational Master Plan (cont.)

| <i>Educational Master Plan</i> | <i>Status</i> |
|---|---|
| 5. More outreach to local high schools via industry professionals | Faculty and staff outreach to area schools. Drafting Fest drafting competition (when funding is available). Career Education Fair. |
| 6. Successive curriculum review | Completed for the Drafting Technician and the Survey Technician/Civil Drafting Technician. |
| 7. New degree program Civil Drafting and Surveying Certificate. Develop | Program approved and is operational. In need of more full-time faculty to increase student enrollment. |
| 8. Continued development of Student Learning Outcomes | In process-plan is to review and revise as needed all SLOs for the even numbered courses in the Fall and the odd numbered courses in the Spring |

Table 3. Program Review Recommendations

| <i>Program Review Recommendations (Previous Cycle)</i> | <i>Status</i> |
|---|---|
| 1. Develop articulation agreement with local high schools | The agreement itself is complete and in the process of acquiring signatures for Vallejo and Vanden High School. |
| 2. Acquire better CAD workstations | Will be installed Summer 2013 |
| 3. Continued research and development of programs to share resources. Ex Fire Technology needing students to learn Blue Print Reading | Curriculum scope and sequence is in the development process |

1.6 Future Outlook.

The program growth has declined or been flat since the economic downturn. However, with a new emphasis on educational spending in general, and CTE funding in particular, and with a promising trend of SCC drafting students being employed in strong numbers at local companies, there is no reason to believe that increased enrollment can't follow. This is especially true if advisory committee program recommendations (see Appendix 3) are implemented.

1.6 Future Outlook. (cont.)

Proposals have been made to add drafting classes (namely, topics in Blueprint Reading, and topics in civil drafting, including surveying, and possibly new classes) with the Fire Technology program, and more drafting core classes (CAD and architectural drafting) to the Interior Design Program. In addition, more students from other disciplines (Welding, Mechatronics, and Engineering) are taking drafting classes because of the close relationship between programs.

The addition of more sections that are offered both during the day and evening, and to some extent online, will help to encourage students to enroll in the drafting program.

External conditions that might have an impact include the economic rate of recovery. The building industry is slowly coming back and this will provide more jobs for those who design homes and use drafters to draw new subdivisions, custom homes and community infrastructure. This has been evidenced as we have seen an uptick in local businesses hiring program graduates.

The Drafting Program also offers students a unique opportunity to gain necessary employment skills that allow them to apply for positions after only a few introductory courses. Many students then take additional courses while working on the job. This method, of learning while working, enhances the students learning. By putting new concepts into practice, students can be promoted to positions of greater skill and responsibility which also has the benefit of higher salary.

The following information regarding employment outlook was obtained from:

<http://www.labormarketinfo.edd.ca.gov/content.asp?pageid=1011>

| Occupation | Area | Outlook % increase 2010-2020 |
|---|---------------|------------------------------|
| Architectural and Civil Drafters | Solano County | 25 |
| Cartographers and Photogrammetrists | East Bay | 18.2 |
| Drafters and Engineering Technicians, All Other | Not Available | |
| Drafters, All Other | East Bay | 15.4 |
| Electrical and Electronics Drafters | East Bay | 19.4 |
| Engineering Technicians, All Other | East Bay | 11.1 |
| Marine Engineers and Naval Architects | Not Available | |
| Mechanical Drafters | Solano County | 16.7 |
| Surveying and Mapping Technicians | Solano County | 33.3 |

There will be challenges, such as scheduling, and the need for more staffing (See section 5.1), but overall the program is strong, with more potential for growth.

CURRICULUM DEVELOPMENT, ASSESSMENT, AND OUTCOMES

2.1 Program Level Outcomes

Table 4. Program Level Outcomes DRAFTING TECHNICIAN

| <i>Program Level Outcomes</i> | <i>ILO (Core 4)</i> | <i>How PLO is assessed</i> |
|---|---------------------|--|
| 1. Students who complete the Certificate of achievement/Associate Degree will be able to demonstrate proficiency using industry standard computer aided drafting/design CAD (AutoCAD) software program. | 4cWork place skills | Since DRFT46 is the advanced AutoCAD class, and the second in the serious of AutoCAD classes, the PLO will be considered successful if 70% complete the class and receive a final grade of 70% or better |
| 2. Students who complete the Certificate of Achievement/Associate Degree will be able to demonstrate proficiency at reading, drawing and dimensioning industry standard mechanical drawings. | 4cWork place skills | Since DRFT55 is the upper level class that focuses on mechanical drafting, the PLO will be considered successful if 70% complete the class receive a final grade of 70% or better. |
| 3. Students who complete the Certificate of Achievement/Associate Degree will be able to demonstrate proficiency at reading, drawing and dimensioning industry standard civil drawings. | 4cWork place skills | Since DRFT80 is the upper level class that focuses on civil drafting, the PLO will be considered successful if 70% complete the class with a passing grade of 70% or better. |
| 4. Students who complete the Certificate of achievement/Associate Degree Will be able to demonstrate proficiency at reading, drawing and dimensioning industry standard electronic drawings. | 4cWork place skills | Since DRFT75 is the upper level class that focuses on electronic drafting, the PLO will be considered successful if 70% complete the class receive a final grade of 70% or better. |
| 5. Students who complete the Certificate of achievement/Associate Degree will be able to demonstrate proficiency at reading, drawing and dimensioning industry standard architectural drawings. | 4cWork place skills | Success criteria: Since DRFT60 is the upper level class that focuses on architectural drafting, the PLO will be considered successful if 70% complete the class receive a final grade of 70% or better. |

2.1 Program Level Outcomes (cont.)

Table 5. Program Level Outcomes SURVEY TECHNICIAN

| Program Level Outcomes | ILO (Core 4) | How PLO is assessed |
|---|---------------------|---|
| 1. Students who complete the Certificate of Achievement/ Associate Degree will be able to demonstrate proficiency using industry standard computer aided drafting/design CAD (AutoCAD) software program. | 4cWork place skills | Since DRFT46 is the advanced AutoCAD class, and the second in the series of AutoCAD classes, the PLO will be considered successful if 70% complete the class and receive a final grade of 70% or better |
| 2. Students who complete the Certificate of Achievement/ Associate Degree will be able to demonstrate proficiency at reading, drawing and dimensioning industry standard civil drawings. | 4cWork place skills | Since DRFT80 is the upper level class that focuses on civil drafting, the PLO will be considered successful if 70% complete the class with a passing grade of 70% or better. |
| 3. Students who complete the Certificate of achievement/ Associate Degree will be able to demonstrate basic understanding in using industry standard survey equipment including Transit, Theodolite, and Level. | 4cWork place skills | Since DRFT140 is the upper level class that focuses on surveying, the PLO will be considered successful if 70% complete the class receive a final grade of 70% or better. |

2.2 The following table shows how courses support the Program Level Outcomes and at which level (introduced (I), developing (D), or mastered (M))

Table 6. Program Courses and Program Level Outcomes DRAFTING TECHNICIAN

| Course | PL01 | PL02 |
|----------|------|------|
| DRFT 045 | D | D |
| DRFT 046 | D | D |
| DRFT 050 | I | I |
| DRFT 055 | M | M |
| DRFT 060 | M | M |
| DRFT 075 | M | M |
| DRFT 080 | M | M |
| IT 140 | D | D |
| IT 151 | I | I |
| DRFT 125 | D | D |

2.2 (cont.)

Table 7. Program Courses and Program Level Outcomes

SURVEY TECHNICIAN/CIVIL DRAFTING TECHNICIAN

| Course | PL01 | PL02 |
|---------------------------|------|------|
| DRFT 045 | D | D |
| DRFT 046 | D | D |
| DRFT 050 | I | I |
| DRFT 060 | M | M |
| GEOL 010, or GEOG 010, | D | D |
| DRFT 080 | M | M |
| DRFT 085 | M | M |
| DRFT 140 | M | M |
| IT 151 | I | I |

2.3 Initially the Drafting Technology department had only 2 PLO's. They were as follows:

- Students who complete the Certificate of Achievement/Associate Degree will be able to demonstrate proficiency using industry standard computer aided drafting/design CAD (AutoCAD) software program.
- Students who complete the Certificate of Achievement/Associate Degree will be able to demonstrate proficiency at reading, drawing and dimensioning industry standard drawings in the fields of Mechanical, Civil, Architectural and Electronic drafting and design.

However, in the school year 2011-2012 the drafting faculty came to the consensus that the later PLO was too broad, making it difficult to measure. As a result, that particular PLO was separated into 4 PLO's. The belief was that each subject was essentially separate from each other in standards--such as the American National Standards Institute (ANSI), American Society of Mechanical Engineers (ASME), American Society of Civil Engineers (ASCE), American Institute Of Architects (AIA), Association Connecting Electronic Industries (IPC)--and fundamentals (such as the difference in dimensioning, drawing layout, and importance of topics). For example, dimensioning in Electronic Drafting is, often, not stressed or even practice, as drawings such as printed circuit board (PCB) schematics are not scaled. Conversely, dimensioning in Mechanical, Architectural and Civil drafting is vital to the integrity and accuracy of the drawing and the subsequent product. There can be no way of standardizing all of the disciplines into one outcome; therefore the only solution was to assess each one independently.

2.3 (cont.)

Subsequently, it was decided that, since industry standard (ANSI, ASME, ASCE, AIA, IPC) practices are taught in each related class, and standards can vary greatly per organization, and each related class (DRFT55, DRFT60, DRFT75, DRFT80) has suitable prerequisites (DRFT45, DRFT50, IT150, depending on the course) that using each class as a PLO would be adequate in the assessment process.

Both the Drafting Technician and Survey Technology program assessments will be complete in Spring of 2014, when PLO5, and PLO3 are complete.

Faculty and industry advisors have been pleased with the outcome of the assessments that have taken place to this point.

Table 8. Program Level Assessments

DRAFTING TECHNICIAN

| <i>Program Level Outcomes</i> | <i>Dates Assessed</i> | <i>Results</i> | <i>Action Plan</i> |
|-------------------------------|-----------------------|--|--|
| 1. PLO 1 | <i>Fall 2012</i> | Of the 13 students who took the class, 8 passed with a 70% or better. However, 2 of these students stopped attending class after the last date to drop. So, although statistically, this PLO was not a success, based on the number of students who completed, it was. | DRFT46 was taught in a hybrid format. It was decided to offer the class in a face-to-face format and note any changes in outcome. As a result, further analysis will take place after Fall 2013. |
| 2. PLO2 | <i>Spring 2013</i> | Of the 21 students who completed the class, 18 students finished the class with a 70% or better. | The PLO was considered a success. No further action will be taken at this time. |
| 3. PLO3 | <i>Fall 2012</i> | Of the 10 students who completed the class, 10 passed with a 70% or better. | The PLO was considered a success. No further action will be taken at this time. |
| 4. PLO4 | <i>Fall 2011</i> | Of the 12 students who completed the class, 11 passed with a 10% or better. This PLO is considered a success. | The PLO was considered a success. No further action will be taken at this time. |
| 5. PLO5 | <i>Spring 2014</i> | TBD | TBD |

2.3 (cont.)

Table 9. Program Level Assessments

SURVEY TECHNICIAN/CIVIL DRAFTING TECHNICIAN

| <i>Program Level Outcomes</i> | <i>Dates Assessed</i> | <i>Results</i> | <i>Action Plan</i> |
|-------------------------------|-----------------------|--|--|
| 1. PLO 1 | Fall 2012 | Of the 13 students who took the class, 8 passed with a 70% or better. However, 2 of these students stopped attending class after the last date to drop. So, although statistically, this PLO was not a success, based on the number of students who completed, it was. | This class was taught in a hybrid format. It was decided to offer the class in a face-to-face format and note any changes in outcome. As a result, further analysis will take place after Fall 2013. |
| 2. PLO2 | Fall 2012 | Of the 10 students who completed the class, 10 passed with a 70% or better. | The PLO was considered a success. No further action will be taken at this time. |
| 3. PLO3 | Spring 2014 | TBD | TBD |

Student Learning Outcomes

2.4 The full-time instructor facilitates SLO development, with input from adjunct faculty. The contribution of adjunct instructors is especially important in, SolidWorks, Civil Drafting, Architectural Drafting and Surveying Courses, which are not the specialty of the current full-time faculty member.

Like courses (for example, all DRFT50 and DRFT45 sections) all use the same assessment methods, including exam questions, drawings and/or projects, regardless of instructor. For example, one SLO for DRFT45 is a dimensioned, mechanical drawing in CAD, plotted to scale. All faculty use the same drawing and rubric for the assessment. (see Appendix 4A and 4B)

2.5 Table 10. SLOs

| Course # | Course Name | F2013 | S2014 | F2014 | S2015 | F2015 | S2016 | F2016 | S2017 |
|----------------|---|-------|-------|-------|-------|-------|-------|-------|-------|
| <i>DRFT45</i> | Intro to Computer Aided Drafting | | X | | X | | X | | X |
| <i>DRFT46</i> | Advanced Computer Aided Drafting | X | | X | | X | | X | |
| <i>DRFT50</i> | Basic Drafting | X | | X | | X | | X | |
| <i>DRFT55</i> | Mechanical Drafting I | | X | | | | X | | |
| <i>DRFT57</i> | Mechanical Drafting II | | | | X* | | | | X* |
| <i>DRFT60</i> | Architectural Drafting I | | X | | | | X | | |
| <i>DRFT65</i> | Architectural Drafting II | | X* | | | | X* | | |
| <i>DRFT75</i> | Electronic Drafting and Printed Circuit Board Design | X | | | | X | | | |
| <i>DRFT79</i> | Blueprint Reading | | X | | X | | X | | X |
| <i>DRFT80</i> | Civil Drafting I | | | X | | | | X | |
| <i>DRFT85</i> | Civil Drafting II | | | X* | | | | X* | |
| <i>DRFT92</i> | Special Problems | | X* | X* | | X* | | X* | |
| <i>DRFT125</i> | Solid modeling with SolidWorks | | X | | X | | X | | |
| <i>DRFT130</i> | Advanced Electronic Drafting and Printed Circuit Board Design | | | | | X | | | |
| <i>DRFT140</i> | Surveying | X | | | | X | | | |

*Advanced and special problems courses (*DRFT57*, *DRFT65*, *DRFT85*, and *DRFT140*) are electives with traditionally low enrollments. They are scheduled with a lower level course and may or may not have students in any given semester (for example, *DRFT60* is scheduled concurrently with *DRFT65*. *DRFT92* may be scheduled with any other class since it may or may not have students on any given semester).

2.6 In looking at the SLO data from the assessments completed for 2012 to 2013, 80% or more of the students who took the assessment test met or exceeded the minimum criteria set for that particular course. Some students did not complete the assessment. Other students dropped or withdrew from the class and did not participate in the assessment process. The reasons for discontinuing the course are not clear. Often students are hired before completion of the course and/or program. Other students were absent and chose not to make-up the assignment.

2.5 SLOs (cont.)

Evaluating the effectiveness of the assessment tool and its relevance to what and how information is presented in the classroom is part of an ongoing process amongst the full-time and adjunct faculty. Since the same assessment tool is used for each of the sections taught of a particular course, this helps to ensure that the content presented remains consistent regardless of who teaches the course or when a course is taught (day or evening, Fall or Spring).

2.6 In looking at the SLO data from the assessments completed for 2012 to 2013, 80% or more of the students who took the assessment test met or exceeded the minimum criteria set for that particular course. Some students did not complete the assessment. Other students dropped or withdrew from the class and did not participate in the assessment process. The reasons for discontinuing the course are not clear. Often students are hired before completion of the course and/or program. Other students were absent and chose not to make-up the assignment.

Evaluating the effectiveness of the assessment tool and its relevance to what and how information is presented in the classroom is part of an ongoing process amongst the full-time and adjunct staff. The same assessment tool is used for each of the sections taught of a particular course. This helps to ensure that the content presented remains consistent regardless of who teaches the course or when a course is taught (day or evening, Fall or Spring).

2.7 The current group of faculty are completing all SLO's as required by SCC requirements. All know the expectations and, as a group, we have worked to standardize assessments in quality and scope.

2.8 No significant changes have been made to the program since drafting SLO's have had successful outcomes. However, faculty have made adjustments to assessment methods and exams and/or drawings/projects. For example, drawing difficulty and scope are continually assessed in order to maintain integrity of the process and to encourage uniformity in classes with multiple instructors. This is especially true of courses DRFT45, DRFT50 and DRFT79. Rubrics and assessment methods were standardized to meet the expectations of all instructors.

Some courses have only been assessed once or twice, due to the fact that some courses are only offered on a 2-year cycle.

Curricular offerings -

2.9 Course offerings. Since the last program review, several courses have been removed from the course catalog because they are no longer relevant to the program and/or have become obsolete. DRFT45A (Intro to CAD part 1), DRFT45B (Intro to CAD part 2), DRFT46A (Advanced CAD part 1), DRFT46B (Advanced CAD part 2), DRFT56 (Descriptive Geometry), DRFT135 (Structural and Detail Drawing)

2.9 Course offerings. (cont.)

The addition of the Survey Technician program was created to train students in how to gather information using surveying equipment and how to transfer that information into CAD programs to make geographically correct drawings. The addition of the Survey Technician major utilizes the existing courses from the drafting department as well as courses from other departments. It also provides specialized training in an area of need within the community. The lack of surveying technicians and surveyors in Solano County was identified by the information from the annual advisory committee meetings.

In contrast to the Drafting Technology degree offers an overview of course work that includes electronic, mechanical, civil, and architectural drafting. Coursework also includes Solid modeling with SolidWorks. SolidWorks is one of the main industry standard programs for mechanical engineering.

Currently, the only course offered at SCC satellite campus sites has been DRFT79, Blue Print reading, which was offered in Vacaville. This course was offered at the Vacaville campus. Because of the specialized software needed in teaching Drafting, courses are offered predominantly at the Fairfield campus. Online courses are offered in DRFT45, DRFT46 and DRFT79.

2.9 Course offerings. (cont.)

Drafting

Drafting Technician

Program Description

This program is designed to provide students with entry-level skills in the fields of mechanical, electrical, civil and architectural drafting.

Certificate of Achievement and Associate in Science Degree

A Certificate of Achievement can be obtained upon completion of the 30-unit major listed below. The Associate in Science Degree can be obtained by completing a total of 60 units, including the major, general education requirements, and electives.

All courses in the major must be completed with a grade of C or better or a P if the course is taken on a Pass/No Pass basis.

Program Outcomes

Students who complete the Certificate of Achievement/ Associate Degree will be able to:

1. Demonstrate proficiency at reading, drawing and dimensioning industry standard drawings in the fields of Mechanical, Civil, Architectural, and Electronic drafting and design.
2. Demonstrate proficiency using industry standard computer aided drafting/ design CADD software programs.

Recommended Electives

- DRFT 056 Descriptive Geometry
- DRFT 057 Mechanical Drafting - Level II
- DRFT 065 Architectural Drafting II
- DRFT 070 Technical Illustration and Design
- DRFT 079 Blueprint Reading
- DRFT 085 Civil Drafting II
- DRFT 092 Special Problems
- DRFT 130 Advanced Printed Circuit Board Design
- DRFT 135 Structural & Detail Drafting
- DRFT 140 Surveying
- HORT 030 Landscape Design I
- INTD 052 Drafting and Perspective Drawing for Interiors
- OCED 090 Occupational Work Experience
- OCED 091 General Work Experience

| REQUIRED COURSES | Units |
|---|-----------|
| DRFT 045 Introduction to Computer-Aided Drafting (CAD) | 3 |
| DRFT 046 Advanced CAD | 3 |
| DRFT 050 Basic Drafting | 3 |
| DRFT 055 Mechanical Drafting - Level I | 3 |
| DRFT 060 Architectural Drafting I | 3 |
| DRFT 075 Electronic Drafting | 3 |
| DRFT 080 Civil Drafting I | 3 |
| DRFT 125 Solid Modeling with Solidworks | 3 |
| IT 140 Industrial Materials | 3 |
| IT 151 Vocational Mathematics | 3 |
| Total Units | 30 |

NOTE: Many of the advanced courses will require CAD. It is important to take DRFT 045 (Intro. to CAD) as early in your program as possible. College credit may be obtained with credit by examination in DRFT 045, 050, and 060 or they may be waived.

See Appendix 5 for complete course descriptions.

2.9 Course offerings. (cont.)

Survey Technician/Civil Drafting Technician

Program Description

This program is designed to provide students with entry-level skills in the fields of Surveying Technician, Civil Drafting Technician, and/or mapping technician.

Certificate of Achievement and Associate in Science Degree

A Certificate of Achievement can be obtained upon completion of 27 core requirement units. An Associate of Science Degree may be obtained by completing 27 core units in addition to 15 units of restricted elective courses and 21 units of General Education.

Program Outcomes

Students who complete the Certificate of Achievement/ Associate Degree will be able to:

1. Demonstrate proficiency at reading, drawing and dimensioning industry standard drawings in the fields of Mechanical, Civil, Architectural, and Electronic drafting and design.
2. Demonstrate proficiency using industry standard computer aided drafting/design CADD software programs.

| REQUIRED COURSES | Units |
|--|-----------|
| DRFT 045 Introduction to Computer-Aided Drafting (CAD)..... | 3 |
| DRFT 046 Advanced CAD | 3 |
| DRFT 050 Basic Drafting | 3 |
| DRFT 060 Architectural Drafting I..... | 3 |
| DRFT 080 Civil Drafting I | 3 |
| DRFT 085 Civil Drafting II | 3 |
| DRFT 140 Surveying | 3 |
| GEOG 010 Introduction to Geographic Information Systems | 3 |
| OR | |
| GEOG 010 Introduction to Geographic Information Systems | 3 |
| IT 151 Vocational Mathematics..... | 3 |
| Total Units | 27 |

Electives for Associate of Science degree

- DRFT 056 Descriptive Geometry
- DRFT 065 Architectural Drafting II
- DRFT 070 Technical Illustration and Design
- DRFT 079 Blueprint Reading
- DRFT 092 Special Problems
- GEOG 001 Physical Geology
- GEOG 002 Geology Laboratory
- GEOG 005 Geology of California

***Course advisory for all courses: Solano Community College minimum English and Math Standards.
*Drafting 050 should be taken in the first semester of study.**

See Appendix 5 for complete course descriptions.

2.10 Instructional Quality. Faculty ensures a high level of instruction out of a desire to fully prepare students for industry level work. All current faculty have industry experience and know the expectations for working drafting professionals. Classes are run in a lecture/lab format, with drawings/design projects that are often (for upper level classes such as DRFT55, DRFT60, DRFT75, and DRFT80) taken directly from projects that faculty have completed as working professionals in the field. For example, in the civil drafting class (DRFT80) students complete a subdivision made with requirements and setbacks that are to local codes. Lots include bearings and distances, slope, fill, setbacks and other information that would be required for submission the county for approval. In the electronic drafting class (DRFT75), students complete an actual printed circuit board design (generating all files and documentation that would be required to manufacture a PCB) that was once done by the instructor in industry. In mechanical drafting (DRFT55) students design an actual electromechanical assembly model (using the 3D printer) based on a design problem given to them by the instructor.

2.10 Instructional Quality. (cont.)

The project incorporates the steps in a prototype design process and includes real world problems:

- Cost and budgeting requirements
- Placement of LED's (Light Emitting Diodes), connectors, potentiometers and other critical components.
- Assembly with printed circuit board (PCB) model and other relevant hardware.
- Complete drawing generation for production
- Post project design analysis

The latest software (in all programs) is used in the labs, and textbooks are updated every year to ensure that the latest topics are covered. Instructors are dedicated to staying current in their fields by attending industry conferences (AutoCAD University and SolidWorks Seminars). In addition, faculty work well together and support each other's strengths and weaknesses. For example, in the advanced CAD class the faculty member who specializes in mechanical drafting guest lectured on mechanical dimensioning. In the basic drafting class, the "SolidWorks Expert" came to class to give a demonstration of SolidWorks. Faculty also adhere to similar standards on such things as late work and drawing submission, thus standardizing the program and creating a consistent learning atmosphere for students.

2.11 Teaching Methodologies. Within the Drafting Program students are exposed to new information and concepts in a variety of ways. At the beginning of the semester each student receives a syllabus that lists a sequence of topics and the corresponding pages in the textbook. Additional pre-class assignments may include reviewing demonstration videos that not only provide topic information, but also how that information and/or technique can be applied to the concepts to be covered for that day of instruction. For instance for the DRFT45 course, students utilize a service (CADlearning by 4D technology) which has tutorial videos with instructions on AutoCAD topics, such as how to use the circle command or how to trim a line. Student access the list of videos to view via the SCC e-companion online site (and in the future, Canvas LMS). They can also get weekly feedback on how they scored on each assignment by exploring their grade book in the SCC e-companion online. Students usually submit assignments online, where faculty can more accurately check drawings. For example, an error of 10-thousandths of an inch may be critical in the design of an instrument that is used for brain surgery, but would not be noticeable on a printed hard copy. It would, however, be noticed on a digital file.

Other teaching methodologies include regular question and answer sessions during the lecture portion of the class. This assessment helps the instructor to know if information needs to be repeated before moving on to new information. Overhead projection techniques provide the students with a visual reference to follow while the lecture information is being presented. Organizational methods include the use of PowerPoint presentations, pictures, short videos, and actual real time drawing demos using the Elmo projector. With the use of the Net-Op software, the instructor can also connect to each student's computer workstation, so they can have a close-up view of what the instructor is discussing or demonstrating.

2.11 Teaching Methodologies. (cont.)

Other teaching methodologies include the use of handouts, lecture note outlines, and worksheets sheets for the students to practice and assess their own level of understanding.

Once, the lecture has been completed the students practice the new knowledge by completing in class projects. During this time, the instructor reviews information and drafting techniques. Students are encouraged to collaborate on the how to complete projects and often learning is enhanced by this type of dialogue. Students are encouraged to access a variety of internet sites to acquire information on how to complete projects. The use of sites such and MacMaster Carr , an online tool and hardware specialty site (commonly used in industry), which provides information on parts and also includes CAD drawings. If the class seems to be having a difficult time with a concept, the problem is discussed with the class as a whole so they can engage in brainstorming and other methods of problem solving. This is an important technique as it mimics what goes on in industry. Developing teamwork and creative problem solving is an essential part of the drafting and design process.

Student's level of knowledge is assessed at many levels. Questions during lab and lecture give initial feedback of how well the students understand the concepts. The lab projects after each lecture also give both the student and instructor insight as to the level of learning. Quizzes and exams also help to assess comprehension.

In general, most drafting majors are visual, hands on, learners. And although drafting department faculty strive to utilize methods from all learning styles, we try to focus on our typical students strengths in this regard, with multiple hands on examples and drawings for each concept.

Finally, current drafting department faculty have an excellent working relationship. For this reason we are continually sharing information on successful assignments and techniques in order to improve the program as a whole.

2.12 Fill rates/Class size. Classes generally fill well when allowed to run through the first class meeting. However, in the past few semesters, entry-level classes (DRFT45, DRFT50) have often been cancelled because of new administration policies to cancel classes weeks (and sometimes over a month) before the first day of the semester. In Drafting, this policy does not affect the "upper level" classes, because faculty are able to counsel students in previous classes, in person, about the policy (and importance of) enrolling in classes early.

However, this early cancellation policy does impact entry level classes, and thus the potential growth of the program. For the Fall 2013 semester, 2 out of 5 entry-level courses were cancelled weeks before the start of the semester. Faculty also have less input in scheduling since the last program review, resulting in less assurance of what the final schedule will be, making it harder to counsel students.

2.12 Fill rates/Class size.

Anecdotally, the policy to drop classes well before the semester starts has had the opposite effect of that intended. Some students have told faculty that they want to sign up later, closer to the start of the semester, because they want to see which classes survive the cutting process.

Another problem is advertisement of the program. However, in the fall of 2013 the college announced a new campaign to educate the public about the college programs and opportunities. We are hoping this has a positive impact on the program.

2.13 Course sequencing. Courses are not officially sequenced because of cutbacks and lack of staffing. Because of this, it can take as long as 5 semesters to complete an AA degree.

Before state budget cuts and severe class cutbacks, most classes were offered every other semester. For example, before the 2011-2012 school year, DRFT55, DRFT65, DRFT75 and DRFT80 were offered once a year. Now they are only offered every two years on a rotational basis.

However, despite not having an “official” 2-year sequence, an overall reliable pattern is becoming well established.

- DRFT45, DRFT50, and DRFT79 are offered every semester (and sometimes in summer).
- DRFT46 is offered fall semester
- DRFT125 is offered spring semester
- DRFT55-DRFT57 is offered every spring semester
- DRFT60-DRFT65 is offered every other spring semester
- DRFT75-DRFT130 is offered every other fall semester
- DRFT80-DRFT85 is offered every other fall semester
- DRFT92 is offered every semester
- DRFT140 is offered every other fall semester
- IT151 is usually offered every semester
- IT140 is offered every fall semester

Students are informed of course sequencing through faculty contact and education. On the first day of all entry-level classes, the program is discussed with topics including program and course overviews, general course sequencing (see above), and program goals and expectations. The program is reviewed at the start of most upper level classes, in order to be sure students are on track to graduate as quickly as possible.

The department would like to increase offerings to old levels, but in order to do that we will need more instructors, ideally a full-time instructor, and a more efficient scheduling and class cancellation policy which will allow entry-level classes the time to fill, thus feed more students into the next level of classes.

2.14 Basic Skills. Drafting students who lack basic math and English are encouraged to take lower level, basic skills courses; however this does not generally apply to Drafting Technology students.

2.15 Student Survey. Drafting has compiled a student survey (see Appendix 6- student survey), however due to current staffing limitations and administrative priorities, the survey cannot be administered, and results compiled, at this time.

2.16 Four-year articulation. Does not apply.

2.17 High school articulation. In Spring 2013 the Drafting Technology program (in conjunction with SCC CTE transitions staff) overhauled and updated the articulation agreements with local area high schools. We now have agreements in place for DRFT45 and DRFT50. The final exams and drawing include SLO assessments, and are the same as that given to the SCC students who complete the course. (See Appendix 1A, 1B, C Articulation)

2.18 Distance Education. Three classes have been offered in the online format in various semesters between 2009 and 2013: DRFT45, DRFT46, and DRFT79. However the percentage of offerings is small compared to face-to-face classes. On average, one is offered, but not every semester. Success rates are lower for online classes, compared to face-to-face classes with a success rate of 49% and 71% respectively. However, it should be noted that students in the online classes generally fall into two categories; one being a very high success rate, and one being very low due to non-completion of assignments. In other words, those who are self-disciplined, who manage time effectively, do very well in the drafting online classes. These students have an excellent success rate. For students who cannot manage time well, we usually recommend that they enroll in face-to-face classes. It has been observed that a majority of online drafting students are those who work full time, often in drafting/design related fields, who want to upgrade skills.

We plan to offer more online classes in the future, but it will not be a major component of our program.

2.19 Advisory Boards/Licensing (CTE). (See Appendix 3)

The Drafting Technology advisory meeting meets once a year. The main focus of the meeting is to inform members of the drafting department's updates and general information that is new since the previous meeting, but also for faculty to hear the current trends in industry and get advice for the program.

Members are comprised of industry leaders from public and private industry. Special care is taken to include members from all of the main drafting disciplines (Architectural, Mechanical, Electronic, and Civil). We also strive to include a mix of members with many years of experience, along with relatively recent graduates (1-3 years) who can give us feedback about how their drafting education applied to what they experienced once employed in the field. This helps us know what subjects may need changing and, equally important, what is working.

2.19 Advisory Boards/Licensing (CTE). (cont.)

The Drafting Technology program has been heavily influenced by our advisory committee. Examples include:

- Survey Technology Program -- Was recommended by advisory member who is the Solano County Surveyor. That time he stated the future need for surveyors because of the aging population of current surveyors.
- Incorporation with Fire Technology program – Was discussed at length, with positive feedback from all members.
- A concerted effort to include recent graduates (now working in industry) has helped us assess the quality of our offerings. Recent graduates are in a unique position to give first hand feedback on department strengths and weaknesses.

3.1 Course Completion and Retention.

Overall numbers show that males enroll in drafting classes on a much higher rate than females, and that number has increased since the fall of 2008. At that time, male enrollment was 67%, females was 32%, with 1% not reported. In the fall of 2012 male enrollment was 80%, female enrollment was 19%, with 1% not reported.

White, non-Hispanics, make up the largest percentage of students, at 40% on average, with Hispanics at 20%, Black non-Hispanic and Asians each making up 10%, with 20% other ethnicities.

Age range is fairly balanced, with the majority coming from the 20-30 year old age group on average.

The success rate for gender and age is roughly equal. However when looking at ethnicity, the black non-Hispanic population generally have a lower success rate than other ethnic groups. Some semesters, such as fall 2011 are roughly equal, but most are lower for black non-Hispanic. For example, the spring 2013 success rate is half of that for other ethnicities combined.

Face-to-face delivery method is, on average more effective than online or hybrid classes.

3.2 Degrees/Certificates Awarded.

The Drafting Department has awarded 14 AS degrees and 13 certificates of achievements since the last program review. Although these numbers are low, compared to the total awards of the college as a whole, it should be noted that some students start, but do not always complete, the program because they “job out”.

| Drafting Technician | | Associate in Science | | | | | |
|---------------------|----------------------------|----------------------|-------------|-------------|-------------|-------------|-------------|
| Award Counts | | 2007/2008 | 2008/2009 | 2009/2010 | 2010/2011 | 2011/2012 | 2012/2013 |
| Total | | 1 100.00 | 6 100.00 | 7 100.00 | 7 100.00 | 3 100.00 | 3 100.00 |
| Drafting Technician | Associate in Science | 0 0.00 | 2 33.33 | 3 42.86 | 6 85.71 | 1 33.33 | 2 66.67 |
| | Certificate of Achievement | 1 100.00 | 4 66.67 | 4 57.14 | 1 14.29 | 2 66.67 | 1 33.33 |

There was a spike in the 2009-2011 timeframe, which was due to the fact that the program had grown in the years prior to 2008, so those already in the system completed in that time. There is not enough data to establish any trends for gender or ethnicity.

3.2 Degrees/Certificates Awarded. (cont.)

The Survey Technology program awarded only one degree. This low number likely reflects the fact that the economic downturn (and subsequent class reduction) occurred at the infancy of the program, which made it much more difficult to offer low enrollment classes (which would be normal for a new program). For example, the surveying class has a large number of prerequisites, and is the last course in a demanding new program. This class had to be cancelled one year because it did not meet the enrollment numbers set by the administration.

| Drafting Technician: Civil-Architectural | | Associate in Science |
|---|-------------------------|----------------------|
| Award Counts | | |
| | | 2008/2009 |
| Total | | 1 100.00 |
| Drafting Technician: Civil-Architectural | Associate in Science | 1 100.00 |

Now, with the economic climate improving, the program could grow if we had adequate staffing, and the addition of a full-time faculty who specialized in this discipline to teach more of the required classes and promote the program.

3.3 Transfer. Although we occasionally have students who plan to transfer to a 4-year university to study engineering and/or architecture, the primary goal of coursework is to prepare students for the workforce.

3.5 Career Technical Programs. The aim of the AA and certificate programs is to provide experience in a broad variety of classes in varied core disciplines--Mechanical, Architectural, Civil, Electronic--and several relevant software packages--AutoCAD, Architectural AutoCAD, SolidWorks, and Eagle printed circuit board (PCB) design. In addition, the curriculum links with other departments, such as industrial technology for classes in Vocational Mathematics (IT150), Materials (IT140) and various other electives. Advanced coursework is required in AutoCAD and is optional for the other core disciplines, thus providing the opportunity for students who want to focus, in more detail, in one subject area.

The Survey Technology coursework has some overlap with the core Drafting Technology major, but is more focused in upper level civil drafting and surveying, and geographic information system (GIS).

Anecdotally, graduates who have found employment have been satisfied with their training. Some have even said that the work at in class was often more difficult than the work their job. The department has included former graduates on its advisory committees, so continued evaluation can take place.

3.5 Career Technical Programs. (cont.).

In addition to the primary goal of training drafters and designers, some drafting classes are required or recommended for other SCC disciplines, with regular enrollments in the following: (see section 2 for coursework descriptions)

- Engineering -- DRFT45, DRFT46, DRFT50, DRFT79, DRFT125 and various other classes that relate to individual area of interest.
- Welding students are required to take DRFT79 and often take DRFT45 and DRFT50.
- Mechatronics—DRFT50, DRFT45, DRFT46, DRFT79, DRFT75, DRFT125
- Fire Technology—DRFT79
- Horticulture—DRFT50, DRFT45, DRFT46
- Interior Design—DRFT50, DRFT45, DRFT46, DRFT60
- Autobody Technology—DRFT50, DRFT45, DRFT79
- Aeronautics—DRFT45, DRFT50, DRFT79, DRFT125
- Art – DRFT50 is an elective in the art department.

In the spring of 2013, the SCC drafting department applied for, and was accepted, to administer CSWA SolidWorks certification exams. (See Appendix 7 SolidWorks Certification information) These exams and certifications are recognized by the industry as a standard for competency in being able to utilize the SolidWorks software to create and manipulate 3D solid models.

The demand for Drafting Technology has increased in recent years. In some cases students are hired after graduation, though in the past year students have been “Jobbing Out” and gaining employment before they complete their degree or certificate. For example, 3 students enrolled in DRFT55 (Mechanical Drafting) last spring, did not enroll in DRFT75 (electronic drafting) to continue the sequence because they were employed by local company CableCom.

Local companies have actively sought out trained students to employ on a full-time basis, with the primary interest coming from CableCom, a Fairfield, California company needing to hire over 20 trained drafters in the past year alone.

Department faculty are pleased that over the past several years--when unemployment numbers have been so high—the program has produced so many students getting jobs in the field. In addition, feedback from employers on our graduates has been outstanding. For example, in the Spring of 2012, Dave Rugg, the manager of CableCom, stated that SCC drafting graduates are more prepared than ITT graduates, and that he would like to hire as many SCC drafting students as possible.

3.5 Career Technical Programs. (cont.)

Although we do not offer a formal job placement program, local employers are contacting our department with increasing frequency. (See Appendix 2- job announcements) When this happens, and a suitable job opening becomes available, faculty announce the position(s) to students in class, and make attempts to notify recent graduates.

Additionally, Drafting Department instructors volunteer to give periodic workshops in resume preparation to interested students. This has become an increasingly popular program and has expanded to include students in other Career Technical Departments.

The department also works (in conjunction with Occupational Education Department) with local organizations placing interns. For example, the City of Suisun has taken a drafting intern for the past 4 years.

It should be noted that part of the Drafting Department mission is retraining. We continually retrain individuals who are already employed in the drafting/design industries and who need to add new skills and upgrade existing skills. This is especially true of software. We see many industry professionals enrolling in AutoCAD and SolidWorks as stand-alone classes without declaring a major. In addition, professionals who are recently laid off from drafting/design industry jobs often seek out one or two classes to fill in gaps in their current knowledge base, in order to increase employability. Those currently employed often do the same to gain an advantage in promotions.

PROGRAM RESOURCES

4.1 Human Resources.

The SCC Drafting Department's greatest strength is its current faculty, who are dedicated and professionals in their conduct with students and staff. All regularly volunteer at events that promote outreach and/or are meant to improve the program. Equally important, they bring individual skills, work well as a team, and complement each other by adding different areas of expertise.

Karen Cook holds a BS degree in Dietetics, a Master's Degree in Education, has completed coursework in drafting and design, and has worked in the drafting/design industry since 1988, specializing primarily in mechanical and electronic design, including Printed Circuit Board Design. Before becoming a full-time drafting faculty member at SCC in 2005, she taught CAD drafting, electronic drafting, and Printed Circuit board design classes as an adjunct instructor at Palomar College in San Marcos, California. She has taught face-to-face, hybrid and online instructional methods at SCC.

As the only full-time instructor, Karen is the program coordinator, responsible for curriculum review and implementation, SLO coordination within the department, planning and facilitator of annual meetings such as advisory committee meetings. She is part of the team that implements articulation agreements with area high schools and also serves (or has served on) on the following college committees: curriculum, sustainability, distance education, and faculty union executive board.

Karen initiated and oversaw the development of the Survey Technician program that coincides within the Drafting Technology Department. She has facilitated, or participated in, numerous outreach events, including middle and high school student visitation. She is a co-founder and participant of the SCC career education fair, participant of STEM workshops on campus, and the organizer of drafting competitions for local high schools that are held on the main campus in Fairfield (Drafting Fest). In past years she has sponsored student participation in the California state fair drafting/design competitions. Twice, students she has sponsored have won best in show – top honors for the entire state – for mechanical designs.

Karen also holds an FSA in Physical Education and has taught P.E. classes at SCC.

Shawn Carney holds an AS degree in Drafting, a BS degree in Digital Design, a Master's Degree in Education with emphasis in Classroom Integration of Technology, and is the CAD manager of a local civil engineering firm. He has been teaching drafting classes at SCC since Fall 2008 and specializes in Civil and Architectural disciplines. He was an invaluable part of the team that developed the curriculum for the Survey Technician AA and certificate programs. He volunteers his time for drafting department and campus events, meetings, and outreach. He

has participated on hiring committees and is always willing to support the needs of the department and college.

4.1 Human Resources. (cont.)

He is a regular participant of Drafting Fest, the Career Education Fair, actively involved with the Department's Advisory Committee and annually sponsors students who participate in the California State Fair Drafting & Design competitions. His student competitors alone have won over ten state fair awards for their projects in civil and architectural design. In spring 2013, his civil drafting students took the top three honors. (See Appendix 9 Fair Results and also Appendix 10, 11A, 11B, 11C, 11 State Fair Projects).

Brad Foulk is a licensed land surveyor and civil engineer. He owns a civil design firm in Fairfield, California and teaches the SCC surveying class (DRFT140). He also volunteers his time for drafting department and campus events, meetings, and outreach and is always willing to support the needs of the department. He is an active participant of advisory meetings and events such as the career education fair.

Cynthia Jourgensen holds an AS degree in Drafting, a BS degree in Nursing and a Master's Degree in Education/Instructional Technology. She has worked in industry using AutoCAD software, and owns a local firm that designs mechanical equipment using SolidWorks software. She is the department SolidWorks expert but teaches other drafting classes as well. Cindy is an invaluable member of the Drafting Department team and has assisted in the writing of curriculum and program reviews. She regularly volunteers at outreach events, such as STEM and the SCC career education fair. She also participates in advisory and articulation meetings.

In Spring 2013, Cynthia applied for SCC to be recognized by the SolidWorks Corporation as an official Certification Testing Provider site. The application was accepted and we were able to provide the Certified SolidWorks Associate Exam to all 19 students enrolled in the DRFT125 class. Normally for an individual to take this exam it would cost \$99.00, but because of the designation as a Certification Testing Provider site, the students were able to take the exam free of charge.

This exam is an industry standard for all professionals who work with SolidWorks and ensure the employer that the student already has acquired measurable skills in the use of this software. The CSWA Certification demonstrates the student's aptitude with SolidWorks, 3D solid modeling techniques, design concepts and engineering practices, and commitment to professional development. (see Appendix 7 SolidWorks Certification Information)

Debra Berrett holds an AS degree in Drafting, a BS degree in Vocational Education and MS degrees in Human Development and Education-Instructional Design for Online Learning. She is the SCC Occupational Education instructor who teaches part-time in the drafting department when needed. She specializes in the Basic Drafting class (DRFT50). Debra regularly volunteers at outreach events, such as STEM workshops at SCC and participates in drafting advisory

committee and articulation meetings. She was the director of the SCC career education fair, responsible for planning and implementation of the event.

4.1 Human Resources. (cont.)

Drafting instructors are actively seeking out professional development. Karen Cook has attended the industry wide AutoCAD University for the past 2 years. This year Shawn Carney will be attending the conference. In January 2014, Cynthia Jourgensen will be attending an industry wide SolidWorks World conference.

SCC deans and administrators have been supportive and generous in faculty attending conferences and professional development events.

The SCC drafting department hires no classified staff. Full-time to Part-time teaching ratio is currently 1:4. However we are near our maximum capacity to cover existing classes. Without more faculty the capacity to offer more classes is minimal.

No drafting instructors have taken sabbatical leave.

4.2 Since 2009 we have lost 4 adjunct instructors to retirement, other time commitments outside the college or other circumstances. Two of those instructors were not rehired due to quality deficiencies.

It is sometimes difficult to find qualified adjunct drafting instructors—individuals who have the skills needed for courses, and the training and temperament to be good instructors. But since the departures of the abovementioned instructors, we have been fortunate to be able to replace them with individuals who have better skills and dedication to our team.

Still, the issue of finding replacements adjunct instructors is one factor that has limited growth and course offerings. Our advisory committee recommendation increases in course offerings, however this will not be possible at our current staffing levels.

Additionally, a proposal has been discussed to, and supported by, the drafting advisory committee that recommends the development of a program combining drafting classes (namely, topics in Blueprint Reading, and topics in civil drafting, including surveying, and possibly new classes) with the Fire Technology program. Topics that should be covered include:

- Blueprint Reading – To include (but not limited to) architectural blueprint skills for use during active fires, HVAC drawings and electrical wiring.
- Civil Drafting – Map reading (to include topographic maps). Land surveying topics for wild land fires and fire prevention.
- Mechanical drawing understanding -- For residential and commercial fire sprinkler regulations and installation recognition which includes an understanding of mechanical drawing topics.

- Computer Aided Drafting - AutoCAD – Some fire departments use CAD to create maps for fire prevention. Some fire related companies use CAD to draw and design fire sprinkler systems in residential and commercial buildings.

4.2 (cont.)

Solano College is also beginning to revive the Interior Design program, after years of negative growth, due to budget constraints and the lack of staffing. Drafting classes will play an important role in this program, as there is considerable crossover from one program to the other. Drafting classes that are necessary for Interior Design include CAD, basic drafting concepts and architectural drafting.

Currently the Interior Design department is part of the Humanities School at the college. However, in most (if not all) schools that offer both Drafting and Interior Design, the programs are a part of the same department, under the CTE division. It would make sense to place them together at SCC as well.

Unfortunately, the potential additions of the aforementioned programs will be difficult (if not impossible) to implement with current faculty levels. Current staffing will not allow the additional growth. It would be best to hire a full-time faculty member with a specific expertise in civil and architectural drafting.

The Survey Technician program could be more heavily promoted with another full-time faculty member as well, especially one who specializes in the field of civil drafting (and related subjects). With current staffing the needs of the program have not been given the attention it deserves. Part-time faculty do their best on a volunteer basis, but with other commitments to their full-time jobs outside the college, the need is too great.

Finally, because of the increase in number and breath of administrative reports (Program Review, Curriculum Review, SLO's, PLO's, etc.) it is not possible to add new tasks (such as adding new curriculum) without more staffing. This is not unique to drafting. Other SCC CTE programs have only one full-time faculty member, so departmental work cannot be shared (such as in programs like English, Science, etc. where there are multiple full-time faculty). This makes it that much more difficult to serve on committees, write reports, or take on extra tasks; and serious consideration of sabbatical projects are all but impossible.

4.3 Equipment. Currently the equipment needs are adequate. Software is kept current and in summer 2013, the drafting labs have been upgraded. However, over the next 3 years it is anticipated that the department will require:

- New drafting tables
- New surveying equipment
- New computer monitors

- A 3D scanner

In addition, if the Interior Design and/or Drafting and Fire technology departments combine, more equipment may be needed.

4.4 Facilities. The department has 2 dedicated rooms with 22 computer stations in both rooms, with combined computer stations and drafting tables in another. Overall the rooms are adequate for our needs at this time.

However, the building that houses the rooms have some significant deficiencies:

- The building has no plumbing so bathrooms are located in a building a short walk away. This is not generally an issue for day classes, but it can be at night, or in inclement weather.
- The building is in a remote area of the campus with parking facilities that are not adjacent to the building

Anecdotally, some female students have stated that they will not enroll in evening classes out of fear of walking in the dark to the remote bathrooms, and because of the remote location of the parking lots. It is reasonable to think that this could be a factor in why enrollment among females has declined in recent years.

Department faculty are hoping for facility changes with the addition of measure Q funding and a campus wide facilities master plan. It is hoped that a building dedicated to CTE programs is in the planning.

4.5 Budget/Fiscal Profile.

Five year historical budget outlook.

| Year | Academic Salaries | Classified Salaries | Benefits | Supplies | Other Operating | Capital Outlay |
|------|-------------------|---------------------|-------------|------------|-----------------|----------------|
| 2013 | \$131,495.90 | | \$25,426.57 | \$3,416.57 | \$7,709.10 | \$57,677.77 |
| 2012 | \$114,561.36 | | \$27,017.28 | \$153.95 | \$12,449.43 | |
| 2011 | \$120,811.76 | \$1,120.00 | \$26,278.44 | \$1,202.08 | \$14,729.33 | |
| 2010 | \$142,377.30 | \$472.00 | \$27,068.25 | \$554.89 | \$28,923.16 | |
| 2009 | \$95,627.11 | \$1,750.00 | \$20,765.23 | \$234.30 | \$10,505.87 | \$8,290.69 |

4.5 Budget/Fiscal Profile. (cont.)

Funding for drafting has been adequate since the past program review.

- A capital outlay of \$56,677.77 was extended for new computers in both of our CAD labs using VTEA funding.
- Software is currently up to date and it is anticipated that the yearly licenses for current software programs will be maintained.
- Supplies (paper, misc. supplies) are adequate for current needs.
- In 2012 the department purchased an industry standard 3D printer. This has been a valuable tool for students, especially in classes DRFT46, DRFT55, DRFT57, and DRFT125.
- Professional development has been encouraged and funded by the SCC administration. The drafting faculty members feel well supported in this area.
- Grant funding has allowed a part time (6-hours a week) student drafting lab tech and tutor in years 2012 and 2013. Student participation in this extra lab time is enthusiastic, with the average number of students (per 3-hour session) being 9 students.

Despite these outlays:

- The drafting department is in need of one more full-time faculty member, in order to maintain growth and help implement new programs.
- It is anticipated that new drafting tables will be required in the future, due to normal wear and tear.
- Computers will, at some time in the future, will require updating, as software becomes more demanding. However, right now that time frame cannot be judged or anticipated.
- Software licenses will need yearly updates to meet subscription commitments. However, recent trends from software companies are to lower the price of student training software. For example, the price of AutoCAD software went down before the last year of purchase.
- AutoCAD software is currently only offered in the drafting classrooms. It would be a substantial help to students if the school would purchase additional software licenses for other campus computers, so drafting students can study and complete homework outside of class. Many students can obtain a free student version of the software, but not all students have a home computer.
- Miscellaneous furniture – Such as bookshelves and instructor desks, may need upgrading at some point in the future, though for now the furniture is adequate.

PROGRAMMATIC GOALS & PLANNING

5.1 Program strengths, accomplishments and challenges.

Program strengths:

- Faculty – Current faculty members are dedicated to students, knowledgeable in their specialties, motivated individually, and team oriented with one another
- Dedication to staying current in industry trends and standards through professional development and working in the field and using the latest software and equipment.
- Potential to work with new programs (Interior Design, Fire Technology, Engineering).
- Excellent working relationships with existing programs (Welding, Mechatronics, Aeronautics)
- Administrative financial support – In recent years, the SCC administration and management have been supportive with equipment, software and professional development.

Accomplishments:

- Job placement - We are proud that over the past several years--when unemployment numbers have been so high – the program has produced so many students getting jobs in the field. In addition, feedback from employers on our graduates has been outstanding. In Spring 2012, Dave Rugg of CableCom in Fairfield, CA (a significant employer of SCC drafting students) stated that he wants to hire as many SCC drafting students as possible, and that he (specifically stated) that the students he recently hired from ITT Technical institute were not as technically prepared for the work he needed to have completed.

See table below for recent numbers of students hired at local companies. These are known placements of students who directly reported back to us in the past several years. Often we don't know the hiring status of graduates, sometimes we hear from them later, after they have found employment. (See Appendix 2 - Sample Job announcements).

5.1 (cont.) Program strengths, accomplishments and challenges.

| CableCom | Foulk Gomez & Assoc. | Caltrans | Blue Mountain | Other | City of Suisun (Intern) |
|----------|----------------------|----------|---------------|-------|-------------------------|
| 8 | 4 | 1 | 3 | 8 | 2 |

- Industry Certificates – See Appendix 7 SolidWorks Certification information.
- State Fair – The SCC drafting students have won more statewide drafting awards than any other California community college. (See Appendix 9 - Fair Results and Appendix 10, 11A-D State Fair Project).
- Addition of new, industry standard, equipment—3D printer, new computers, current software subscription licenses for all software taught.
- In Spring 2013, articulation agreements were updated and completed with area high schools for DRFT45 and DRFT50. High school students who articulate these classes are now eligible to enter DRFT55, DRFT60, DRFT75 or DRFT80, directly out of high school. (See Appendix 1A-C - Articulation)
- A strong advisory committee.
- Strong working relationship with other CTE programs, with faculty between departments willing to support each other’s needs and help solve common problems as a team.

Required improvements and/or obstacles –

- Department in need of one more full-time instructor:

It is challenging to find qualified adjunct drafting instructors. Most adjunct instructors have full-time jobs in industry, so the days and times they can teach are limited. For example, we had an excellent SolidWorks instructor who could teach online classes but not face-to-face classes, because of commitments to his full-time day job. It took several years to find a good adjunct instructor who can teach in the classroom. In addition, instructors from industry sometimes do not have the capability to be effective in the classroom.

Drafting technology is a broad field requiring specialized subjects. The current full-time instructor’s industry background is in electronic and mechanical drafting and design, with little experience in civil drafting and design, and no experience in architectural drafting and design. This means the college must rely on adjunct instructors, who by contract and personal time constraints are limited to what they can teach.

5.1 (cont.) Program strengths, accomplishments and challenges.

Although the Survey Technology program is heavily supported by the advisory committee, and is well regarded by industry professionals, current staffing levels make it virtually impossible to promote this program beyond current levels. It would be excellent for the program to have someone who specializes in civil drafting, in order for students to get the full value of that program. The department can function adequately to meet current needs at the current staffing levels, but further growth cannot be accommodated.

- Scheduling and class cancellation challenges -

Scheduling practices since the last program review have changed, which restricts opportunities for drafting students.

Until the 2011/2012 school year, the experience and expertise of faculty were the main driving force in CTE scheduling, with management having the final say. But over the past several years faculty have often been left out of the scheduling and class cancellation process. Furthermore, faculty are often not informed of scheduling and class cancellation decisions when they occur. Sometimes faculty learn about class cancellations and schedule changes from students, who see schedule alterations (to what their instructors told them before registration) when they log on to enroll. More than once, in past semesters, two required classes have been scheduled to overlap timeslots (for example, DRFT79 and DRFT151 that are required classes across disciplines) splitting enrollments.

Another new school policy is that any class that is under enrolled is subject to being dropped by the administration, weeks, or even months before the first day of class. But in drafting, and all CTE classes, students traditionally enroll very late, in the last week, or even the day of, the start of the semester. The fall 2013 schedule initially had 8 scheduled sections, with 5 being entry-level courses. Two of those entry-level courses (DRFT45 and DRFT50) were cancelled well in advance (over a month and several weeks, respectively). The cancellation of close to half of the entry-level classes is especially problematic for upper-level class enrollments in subsequent semesters. Plus, students who enroll in these classes are often new to the college, who do not know the school expectations, that students must be enrolled within a few weeks of registration starting or the class may be dropped. There is a concern that these students give up on SCC altogether and go to schools like DVC or Napa that have a more reliable scheduling system.

If these problems are solved, students will have a wider range of classes choose from, which will make a stronger program and improve enrollments.

- Advertising –

CTE programs in general, and Drafting Technology in particular, have proven themselves successful in training people who can land jobs in local industry, and the demand is there. (See Appendix 2 - Sample Job announcements) However, the school has offered no means to advertise our programs. This is especially problematic when we must compete with for-profit

5.1 (cont.) Program strengths, accomplishments and challenges.

colleges (ITT for example) are often on the radio, TV (and other media outlets) promoting their programs.

At events, such as the recent Career Education Fairs, members of the public continually express that, “I didn’t even know this program existed,” in reference to drafting and other CTE programs.

In the past, faculty members were able to spend more time in outreach (visiting local schools and planning and participating in events at SCC). However recent additions to workload (PLO’s, SLO’s, more extensive program review, etc.) have resulted in less time for those kinds of activities. Even a modest investment in advertising would be helpful in educating the public about the availability and potential of our programs.

5.2 Department Goals

Table 8. Short-Term Goals

| <i>Short-Term Goals</i> | <i>Planned Action</i> | <i>Target Date</i> | <i>Person Responsible</i> | <i>Source</i> |
|---|---|-----------------------------|--|---------------|
| <i>1. Promote new articulation agreements with area high schools.</i> | <i>Work with articulation specialists, and high school instructors.</i> | <i>Ongoing</i> | <i>Karen Cook</i> | <i>P</i> |
| <i>2. Lobby for one more full-time drafting instructor</i> | <i>Meet with administration and responsible committee to facilitate process</i> | <i>Spring 2014</i> | <i>Karen Cook</i> | <i>DB</i> |
| <i>3. Continue subscription software licensing</i> | <i>Work with dean and classified staff</i> | <i>Spring 2014, Ongoing</i> | <i>Karen Cook</i> | <i>P</i> |
| <i>4. Schedule more drafting classes on satellite facilities (Vacaville, Vallejo)</i> | <i>Work with dean and classified staff (based on staffing availability)</i> | <i>Fall 2014</i> | <i>Karen Cook and required adjunct faculty</i> | <i>BD</i> |

| | | | | |
|---|---|----------------------------------|--------------------------------------|------------|
| <i>5. Improve promotion of Survey Technician Program</i> | <i>Implementation dependent on addition of another full-time faculty member.</i> | <i>ASAP</i> | <i>TBA</i> | <i>NP</i> |
| <i>6. Implement an Advanced Level SolidWorks Certification exam (in addition to the Associate Exam)</i> | <i>Work with adjunct faculty to facilitate process</i> | <i>Spring 2014</i> | <i>Cynthia Jourgensen/Karen Cook</i> | <i>NP</i> |
| <i>7. Advertise program</i> | <i>Dependent on administrative funding and logistical help and expertise</i> | <i>Spring 2014</i> | <i>TBD</i> | <i>TBD</i> |
| <i>8. Work with Interior Design staff and faculty a smooth integration of Drafting classes in Interior Design Program</i> | <i>Work with Interior Design Faculty and Staff</i> | <i>Spring/2014 Fall 2014</i> | <i>Karen Cook</i> | <i>SP</i> |
| <i>9. Lobby for new drafting classroom facilities</i> | <i>Add new drafting classroom facilities to Measure Q master plan documentation</i> | <i>Fall 2013</i> | <i>Karen Cook</i> | <i>SP</i> |

Table 8. Long-Term Goals

| <i>Long-Term Goals</i> | <i>Planned Action</i> | <i>Target Date</i> | <i>Person Responsible</i> | <i>Source</i> |
|--|---|---------------------------|---|---------------|
| <i>1. Work to better promote Survey Technician Program</i> | <i>Implementation dependent on addition of another full-time faculty member.</i> | <i>Spring 2015 (ASAP)</i> | <i>Karen Cook, New faculty member</i> | <i>SP</i> |
| <i>2. Work with MESA to include more drafting/design integration (as per advisory committee recommendation. (See Appendix 3 - Advisory Committee Meeting 2013)</i> | <i>Implementation may be dependent on addition of another full-time faculty member because of time constraints.</i> | <i>Spring 2015</i> | <i>Karen Cook</i> | <i>P</i> |
| <i>3. Purchase of new drafting table/computer work stations as equipment suffers wear and tear.</i> | <i>Work with dean and classified staff</i> | <i>Spring 2015</i> | <i>Karen Cook</i> | <i>P</i> |
| <i>4. Drafting Lab location change based on SCC measure Q master plan implementation.</i> | <i>Work with dean, measure Q planners</i> | <i>TBD</i> | <i>Karen Cook, Dean, Measure Q planners</i> | <i>SP</i> |
| <i>5. Work with Fire Technology to incorporate Drafting Technology topics</i> | <i>Implementation dependent on addition of another full-time faculty member.</i> | <i>Spring 2016</i> | <i>Karen Cook, New faculty member</i> | <i>SP</i> |