
Drafting

Cycles included in report:
Cycle #3 8/1/14 to 7/31/15

Program Name: Drafting
Program Cycle: #3 8/1/14 to 7/31/15

1 Program Summary Computer Aided Drafting and Design

Contact for the CADD Program Review: Tom Hughes Chair

IR reports 5 full time Faculty members teaching classes in the DRAF program area:
The department chair and the two other current members of the department are listed. In addition to those 3 full time members currently in the department one recently retired (Dec. 2013) faculty member and one full time member of another department (teaches 2 DRAF classes) are listed as teaching DRAF pre-fix courses.

3 Part time Faculty members are listed as teaching in this area.

The average completion for the last 3 years is reported as 90.5 %
The average completer success for the last 3 years as 81.7%
The average attrition for the last 3 years as 8.9%

Credit hours reported as:

2011-2012 1580
2012-2013 1357
2013-2014 1412

Enrollment reported as:

2011-2012 614
2012-2013 565
2013-2014 590

Number of Degrees/Certificates awarded:

2011-2012 12/9
2012-2013 7/9
2013-2014 7/7

Percent of Graduates working in a related field:

2010-2011 60%
2011-2012 100%
2012-2013 75%

Program cost per credit hour provided:

2012-2013 \$293.07
2013-2014 \$383.43

Drafting Computer Aided Drafting [PDF 749 KB 9/2/14]

HandbookProgramReviewFall2014 [PDF 2,136 KB 9/2/14]

1.1 Degree Offerings

We offer an associate of applied science degree in Computer-Aided Drafting and Design. The 64-credit-hour CADD program is overseen by an Advisory Board made up of professionals from local companies. The program provides CADD support technicians to many local companies. Our students learn the skills necessary to produce a variety of design documents including detailed shop drawings, land plats, erection drawings, production drawings, commercial building and site construction drawings as well as detailed drawings and designs of assemblies and systems used in manufactured products. Course projects and laboratory procedures are similar to those used in industry.

In addition to the CADD degree the program offers support courses for the Construction Management and Interior Design degree programs.

1.2 Certificate Offerings

Our 10-hour computer-aided drafting certificate makes it possible for those who already have a drafting or engineering degree, or those who have sufficient work experience, to obtain certification in CADD. The two track certificate provides training in AutoCAD and one of two parametric design software packages; either REVIT for the building trades or INVENTOR for the manufacturing sector needs. The Certificate provides software training to both working and displaced workers in need of skill updating.

2 Program Resources

The CADD program has 3 full time faculty members.

The program is using 2 adjunct faculty for fall 14 classes and will need 3 for spring 2015.

The program has access to two computer labs in the ITC building. One lab is a scheduled lab with 20 workstations with the specialty software required for all of the programs requirements. All of the upper level classes use this lab. The second lab (25 stations) serves as an open lab for program students. The program uses a lab equipped with 15 drafting tables which is also located in the ITC building. Two smart classrooms are used by program classes.

3 Reflection on Institutional Data

I.R. data shows that the amount of instruction provided by adjunct in this program is increasing. With the recent lose of one full time faculty member through retirement it is likely that it will continue to increase. The increased use of adjunct will result in some real challenges going forward. The main challenge will be to find and keep qualified adjunct faculty in a program area that has constantly changing software demands. It is likely that we will have some success in covering evening and weekend offerings with adjunct but finding qualified individuals to assist with day offerings has and will continued to be difficult.

Data shows that this program has class completion, success and attrition ratios at the College norm. Once that was established our approach to the evaluation of the data in this section was to compare each of our individual courses to our program average. The question was asked: Why does this course deviate from the norm? We were looking for factors that could cause a class to be either above or below the average. Our initial discussions identified a variety of possible factors. Items identified included.

- 1) typical population of the course.
 - a) degree/cert. seeking
- 2) mix of adult learners
- 3) level of problem solving required
- 4) number of pre-requisites
- 5) delivery method

We plan to continue these course by course discussions beyond the scope of this review and see if we can identify factors that we can control and that will make a difference to these outcomes.

The number of graduates reported in this section is a concern to the program. The last two years shows 7 graduates for each academic year. We need to have more graduates! The demand for CADD technicians is high, during that same two year reporting period there were 44 different companies that posted CADD positions with the Career Development Center. It is likely that we have lost some students before they chose to graduate, instead taking those immediate job opportunities that exist. When our student take those jobs we lose them as reported graduates. We know that there are students taking either full or part-time positions as they progress through the program our concern is how do we successfully encourage them to complete their degree? Their concern: Do they need to?

We are sure that our Program is not unique when it comes to this concern. We wonder if there is or should be an Instructional solution to how we track those students that leave early but have met their short term needs for employment?

4 Student Success

The CADD program provides course offerings for two separate but equally important student

populations. The first is the student seeking to enter the job market with a skill set that they can build a career around. The CADD AAS degree does just that. The 64 credit hour program prepares a student for entry into a variety of different industries which utilize drafting and design services. The programs advisory board has helped establish a program that is detailed yet broad based enough to prepare students for many different entry level positions. Courses with discipline specific knowledge for manufacturing, electrical, structural, civil and architectural are all included in the program. Not only is the latest in design software taught but how to apply it in each of the discipline areas is stressed. The department produced 26 program grads during the last three years.

The second student population our program serves is the person looking to update their skills for job advancement or retention. We offer two certificate options for software updating that covers both 2D drafting software and 3D design software. These focused course offerings are essential for those needing to update their software skills.

The department produced 25 certificate completers during the last three years.

4.1 Define Student Success

This program provides opportunity for student success in four of the "purpose/mission" areas defined for the Instructional branch in the "Instructional Program and Activities Planning Template".

A. Meet CTE (AAS, Certificates) program requirements.

D. Provide courses and/or activities for personal interest or self-improvement.

F. Provide courses designed to fulfill requirements to prepare students to enter or change occupational career field.

G. Provide courses and/or activities to improve skills for present job or explore courses to decide on a career.

4.2 Achieve/Promote Student Success

The CADD program uses notes on the schedule to reach out to new students enrolling in DRAF classes. A note on each entry level class requests that students that are new to the program contact the chair before classes start. The chair meets with the students to help them determine that they are enrolling in the correct courses. The main goal is to catch those students that have drafting in their background and get them placed in the proper course. This practice has been very successful at getting students coming from articulated high schools into more advanced classes offered here. The students love it and we don't turn them off by having them set through a class they don't have to take.

Several years ago we started offering DRAF 129 Interpreting Architectural Drawings as a full online class. This class is populated by a large percentage of students with full time jobs and we wanted to create this online course to aid them in completing their degree while still working. We reviewed the student success rate in this online offering and were not pleased with the full online offering method. It was obvious greater student engagement was needed to increase success rate. We therefore modified the course into a hybrid model. This increased the success rate but we still felt more engagement was needed and modified the course to meet on campus 50% of the actual time. This has shown to be an optimal mix of face to face time and online time. It allows the students to complete the class at a reduced seat time to help them with their college/career life, but it also has enough on campus engagement time to give the student a very high probability of success.

4.3 Successful Transfer

Although a few students might transfer to another school, transfer is not a goal nor a priority for the individual courses in this program.

For those students that wish to pursue an advanced degree there is a 2+2 option available with K-State University. The CADD degree can be a part of a Technology management degree at K-State.

5 Assessment of Student Learning Outcomes

This is an area where this program needs to improve. The assessment plan that is currently in place needs to be revised.

Assessment&CurriculumChart [XLS 41 KB 9/2/14]

DRAF assessment slo [XLS 43 KB 11/24/14]

5.1 Reflection on table provided on assessment.

The table updated by the department reflects the courses offered and the 3 identified in the programs original assessment plan.

DRAF 135 DRAF 222 and DRAF 238 were identified to be assessed.

SLO's were identified for each and an assessment plan was developed.

The collection of data was started in each of those courses.

Attached are 3 PDF's

The plan, the template identifying the SLO's and a flow diagram referencing Skills-plus

Drafting Department Core Learning Outcomes Assessment Planning Template [PDF 50 KB 11/24/14]

Drafting program learning assessment validation plan [PDF 54 KB 11/24/14]

Skills_plus_outcomes_link [PDF 3 KB 11/24/14]

5.2 Significant Assessment Findings

The plan that was developed has not worked.

Skills plus was discontinued as a competency tracker.

The department is preparing to revamp the entire process that was initial planned.

5.3 Ongoing Assessment Plans

The program is planning to send two faculty members to the January "assessment by design" workshop.

The goal will be to develop a workable assessment plan for the program.

6 Curriculum Reflection

The current CADD program requirements have been in place since the Fall 2012 term. Those requirements were the result of a curriculum review with Advisory Board input that results in major revisions to the course offerings and sequence of courses. New courses using some of the most popular design software were added at that time.

In order to ensure our CADD program is up-to-date and meets the needs of employers, we conducted a comprehensive curriculum review during the fall semester of 2014. The CADD program staff contacted 11 companies in the greater Kansas City area. Those companies were identified to be employers of CADD technicians. Each of them had recently hired or had a current job posting for a CADD technician.

A member of the JCCC faculty made contact with each company and asked for their help in completing a review of the courses and objectives found within our program. Each company agreed to be a part of the process and identified a contact person to gather the data.

A PDF (JCCC CADD review intro letter) that described the request and provided the current program information was then sent to each contact person.

Comments were returned from ALL 11 companies! Some of those responses included comments from multiple departments/divisions within the company.

A PDF (JCCC 2014 Review Findings) with the unedited comments from those that reviewed the CADD program and its courses is attached.

The second phase of the review was to return to each of the company contacts and ask them to rate each course in two categories. The value of the course to their company and the value of the course in a comprehensive CADD training program. A matrix was supplied to each of the reviewers and ALL 11

companies responded to that request as well.

The data from all of the companies was tallied and a copy of the summary results is in the PDF (JCCC Course rating matrix with tally).

The PDF just described was sent to each member of the CADD Advisory Board for their review prior to the October 31, 2014 advisory board meeting. At that meeting the findings were reviewed and discussed by the board. The need for some course modifications and or new course offerings were identified. Board members were encouraged to continue to reflect on the data and get their additional thoughts back to the program faculty. The faculty are in the process of formulating a plan to work the findings into the curriculum for Board approval at the Spring 2015 board meeting.

It is important to note this curriculum review was accomplished with the help of several local companies and our very active and engaged industrial advisory board.

JCCC 2014 Review findings [PDF 4,276 KB 11/19/14]

JCCC CADD review intro letter [PDF 27 KB 11/19/14]

JCCC Course rating matrix with tally [PDF 45 KB 11/24/14]

6.1 Honors Contract(s)

The Program currently lists DRAF 164 and DRAF 264 as having an honors option.

The honors component was developed by a faculty member that recently retired. The courses will need to be reviewed to see if this option will continue.

6.2 New Course Offerings

DRAF 151, Intro to SketchUp. This class teaches a very popular software program used in architecture, interior design and construction industries. Even though it's an elective, we manage to offer three sections a year. Many students are non-traditional students and are taking it to upgrade their skills so they become more employable. The class is in the process of being replaced by a new expanded offering of the same software package.

A full-time faculty member is currently developing a 3D printing class using Autodesk 123D software that should be offered Fall 2015.

7 Faculty Success

The CADD program has a faculty that is current with the hardware and software demands of the existing program. Beyond its teaching duties the faculty is active with area high schools, local industries, and college commitments outside the department level.

7.1 Departmental Accomplishments

The CADD department is committed to working with high school students to help them prepare for a career in a technical field. The department heads the yearly Competitive Technology Event (CTE) held at JCCC. This completion draws over 500 high school student to our campus each January for a day filled with over 30 competitions in many areas of technology. The Drafting faculty created the event and continue volunteering their time each year. We are proud to have created such a wonderful event which brings so many potential students to our campus.

The CADD program is also very active in the articulation process with the consortium High Schools. Most of the High Schools have Drafting/CAD related classes and this program area has used the State requirements within the career cluster model to produce numerous articulation agreements with them.

7.2 Faculty Accomplishments

Our faculty are very engaged in their professional development and service to the college and to the community.

Damon

For the past 5 years has helped run the Competitive Technology Event. This event is held at JCCC for area high school students to compete in approximately 30 career related competitions. The events are focused around the Kansas Career Clusters. The event started with around 200 competitors the first year and has grown by approximately 100 students each year. We anticipate 700 students will attend the January 15 2015 event. The events are judged by local industry professionals as well as JCCC faculty.

Applied for a Technology Innovation Grant to purchase a 3D Printer. The grants were not designed for such a large purchase so the 3D printer was purchased through Carl Perkins funds. The 3D printer is used to produce visual aids for students in entry level classes. Upper level students also use the printer for design problems. The math department uses the printer every year to print a student designed vase from a math equation so it has proven to be a good cross curricular item.

Received the 2014 Leadership Award from the Kansas Council for Workforce Education.

Was elected by the Technology Division as a senator to the Faculty Senate. Serves on the Education Affairs committee and is on the procedurals sub-committee of Ed. Affairs.

Is developing and will teach a summer youth class in 2015 for continuing education at JCCC. The class will focus on engineering related problems that the student will have to solve. It is designed for middle school students.

Lydia

has served on several division or campus wide committees; the Bookstore advisory committee, late start and MOOC committee and the technology division senate elections committee.

She has written 5 books, four of which are in her teaching field and used all over the USA, plus in Canada and Saudi Arabia.

Participates in every Free College Day. She has taught two classes in each on getting a non-fiction book published. This year she'll add classes in SketchUp and 3D Printing.

Has volunteered her time as a judge in each of the Competitive Technology Events.

Applied for and received a Technology Innovation Grant for a MakerBot and a Cricut electronic cutting machine; both will be use class activities and curriculum development.

Has a YouTube channel that currently has 220 subscribers and over 51,000 hits. It receives over 2,000 hits/week from people all over the world that watch her instructional videos on Autodesk 123D and SketchUp.

One of her followers wrote the following: I teach Engineering, Physics, and Robotics at Belmont Hill School, an independent school for boys in Boston, Mass. I just wanted to reach out to thank you for publishing your vodcasts on using 123D (screw driver, tea cup, etc...) Your work is tremendously helpful, and having spent countless hours making videos of my own (for topics in physics,) I realize how labor and time intensive this process is. I hope to purchase your book (3D printing with 123D) soon. I also know good work often goes unnoticed, so I thought I'd send you an email letting you know how much I appreciate your hard work. Thank you for being awesome and keep sharing your love and knowledge of all things CAD.

Tom

Serves as department Chair.

Is a strong supporter of and has been active in the Peer review process.

Has helped with the organization, planning and implementation of the Competitive Technology Event since its inception.

Was elected to an at-large position on the first Faculty Senate.

Recently served on the benefits task force, selection committee for the faculty evaluation system and

on the equipment selection committee for document services.

7.3 Innovative Research, Teaching or Community Service

Program faculty are proud to serve on several of the High School advisory boards for drafting and related career clusters. We have faculty serving on the Blue Valley, Olathe and Shawnee Mission advisory boards and on the advisory boards of several of the outlying districts.

Lydia's books and blogs put JCCC on the both the national and international scene.

Damon's development and leadership of the CTE competition has been recognized by local media and acknowledged with a leadership award at the State level.

8 Goal Setting and Action Plan

Both the long and short terms goals where established to focus on areas identified for improvement.

8.1 Long-term Goals

Long range goals:

- 1) Implement any program revision that resulted for the external objectives review, advisory board input and their approval.
- 2) Review and revise if necessary the scheduling pattern of classes.
- 3) Develop a pool of adjunct to assist with the teaching of program offerings.
- 4) Work with the proper College departments to identify a means to track students that leave the program early with marketable skills.

8.1.1 Actions/Resources Required

- 1) The program faculty are activity working with the Advisory Board to review and implement curriculum changes that were identified in the external review process. Some of those changes could result in additional software expenses and could also result in either additional training for full-time faculty or the addition of adjunct faculty.
- 2) The review of the schedule will take into account the strengths and weaknesses of full time faculty and the increasing dependency on adjunct.
- 3) The program faculty will be reaching out to industry to find qualified candidates to teach new and existing program offerings. Success will result in an increase cost of adjunct.
- 4) The College needs a way to identify and track CTE students that leave Programs without a Degree/certificate but with marketable skills and their goals met.

8.1.2 Updates on Long-Term Goals

These are new goals. No updates to report.

8.2 Short-Term Goals

Short term goals:

- 1) Work with the Advisory board to evaluate the findings of the formal course objectives review.
- 2) Develop new or modify existing courses to meet the needs of the review.
- 3) Reach out to companies that were a part of the program review for new advisory board members.
- 4) Work with those companies to develop new opportunities for program grads and internships.
- 5) Review and revise the programs learning outcomes plan to make it more current and workable.
- 6) Investigate the departments opportunities with the summer youth program

8.2.1 Actions/Resources Required

The major resource required to meet these goals will be an investment of faculty time.

8.2.2 Updates on Short-Term Goals

These are new goals. But, there are a few updates to report.

1) At the spring Advisory Board meeting the Board took action directing the Faculty to develop a new course that is to be required in the program. The course will address one of the needs identified in the program review survey and will strengthen the graduates skill set. Additional software and Faculty training will be required to meet this requirement.

Other Program changes are likely to be identified as discussions continue.

4) Two of the companies that were part of the program review process have posted job opportunities for spring graduates.

5) As a result of the January workshop a new assessment plan was developed for tracking learning outcomes. Phase one of that plan was implemented in a course that started in March.

6) A course was developed and added to the offerings of the summer youth program for summer 2015.

9 Accreditation Standards

The State has recently identified a skills test (the SolidWorks software program) for program graduates, but SolidWorks is not a software program that is used in our program or recognized by local industry as a required certification. We are working with the advisory board to address this concern and to identify other ways to certify program graduates for State reporting purposes. Currently we report zero for Program grads on this test.

9.1 Specialized Accreditation

No specialized accreditation is required for this program area.

10 Resource Request/Adjustment

No discussion as occur with the Dean at this point.

Attached spreadsheet shows FY14 data provided by budget department.

BudgetChart [XLS 2,000 KB 9/2/14]

CADD budget 2015-16 [XLS 2,009 KB 11/25/14]

10.1 Long-range Adjustment to Resources

The cost per credit hour for the next 3 years will be on a downward trend.

1) The large increase between the 2012-13 and 2013-14 reporting period was mainly for an ITP (\$152,787) that funded the equipment replacement in the labs and classrooms that support this program. The full cost of that ITP appears in the 2013-14 budget year instead of being amortized over the replacement life of the equipment. By showing the full expense in only one year it skews the cost data.

2) The salary and benefits line items both declined from 2012-13 to 2013-14 and will continue the decline in 2014-15. A full-time faculty member retired at mid-year and was not replaced.

Currently, the DRAF department has up-to-date equipment so we are not requesting any new funds for equipment. There might be a minor request for additional design software to meet a need that was identified in the external course review that we conducted.

We do not foresee a change in full time faculty nor a large change in course offerings. There will be an increase in the adjunct line item to cover courses previously taught by our retired faculty member.

10.2 Educational Technology Support

The students in the CADD program have access to excellent equipment and facilities. The CAD labs in the ITC building are the main support labs for this program. Each lab has computer workstations that were installed in January of 2014. Each lab has a variety of software packages including the Autodesk family of products that are used in the programs classes and required by local industry.

Faculty rely on the current LMS system and its support team for classroom support and class management.

We also rely heavily on the smart classrooms in ITC for the delivery of course content.

The program and its students rely on the tech support provided by the Academic Technology Services department for lab supervision and technician support in the ITC CAD labs.

End of report