Computer Aided Design & Drafting (CADD): Certificate, Diploma

(June 2014-June 2017)

Program Review Reports

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CADD Technologies Program Review Self-Study Report

Date: October 31, 2015

We facilitate learning by preparing students to think critically and analytically for career preparation. This is done in a dynamic educational community that embraces emerging and experimental technology and active problem solving.

CADD Technologies Mission Statement

Ali Hassanlou
CADD Graduate, and KPU School of Business Instructor (Core Citation)

I had always had an interest in learning Computer Aided Design but couldn't find time in my busy schedule. I was fortunate in Spring of 2013 that I finally found some time to learn what I always wanted to learn. I looked at all institutions in BC that offer CADD and found the CADD program in KPU. I am so happy that I took the program because pedagogically, it is a very sound program as it includes all the steps of sequential mental development. The program goals are set high and these goals are communicated with students in the first day of classes. The hand-on feature of the program helps students understand the concepts and apply them to solve problems and get the job done. The program teaches students that there are many different ways to solve a problem. As a person with engineering and business background, this was my favorite part of the program. I think, or better to say "trained to think" that we never limit ourselves to one solution. We try to find as many alternate solutions as possible to one problem and pick one solution that is less risky and takes minimum time/cost. The program faculty are very friendly and knowledgeable in their fields and deliver the program efficiently. They immensely care about the success of their students. I strongly recommend this program for all who want to learn a tool to land a job and do well in life.

Dale Mar
CADD Graduate (Architectural and Mechanical)

After completing the CTC apprenticeship program in high school, I decided to continue on and complete the CADD Technologies Diploma. During the CTC classes, the Architectural and Mechanical specialties really appealed to me.

After completing both certificates, I found a job with an electrical engineering company. Because of the way second year courses are setup, I was able to work in the field while completing the second year credentials. Talking to engineers and designers around the office helped me decide where to take my studies after I completed my CADD Diploma.

Georgie Varkki
CADD Graduate (Mechanical)

I learned about the CADD program when I was in Grade 10 and I discovered that I could work through the courses while I was still in High School through a partnership program. This opportunity really caught my interest.
I found the Mechanical Specialty to be very exciting. As soon I finished my specialty, I landed a job in a reputable engineering company. Everything I learned from the program is used in my job today. I am very excited to work on such world changing projects.

The Kwantlen Instructors were very knowledgeable and 100% committed to making sure I succeeded. During my study period, I was trained in AutoCAD, Revit, Solidworks, Civil 3D and I also learned the technical details required in Mechanical, Piping and Materials Handling.

I am very grateful for the training and skills I have achieved in the CADD program and I would recommend this program to anyone who enjoys Computer Aided Design and Drafting.

Alvin Kaida
CADD Student, and Electrical Engineer (AutoCAD)

I am a Professional Engineer (Electrical). I took the AutoCAD training in Fall 2012. AutoCAD is very useful to engineers who want to be able to create/revise their own drawings or be more marketable in the job market.
The course got me a job in an engineering company that is doing electrical design work. I got the job because they needed versatility. The fact that I was able to use AutoCAD got me the job. Thanks Kwantlen.

Shenesse Walker
CADD Graduate (Architectural and Mechanical)

During my last years of High School, I completed the first semester in the Kwantlen CADD program through a partnership program between my high school and the CADD program at Kwantlen Polytechnic University. I then completed the Architectural and Mechanical specialties to earn two CADD Certificates.
I enjoyed the more conceptual side of Architecture but I found that I really could see a career when I entered into the Mechanical specialty. I found I really enjoyed the various mechanical applications and fields of study revolved from taking the combination Industrial and Manufacturing course which is Mechanical.
After I finished my second year and two specialties I obtained employment with AMEC Engineering in the Process department working within the Mining field. It is a competitive market with a lots of opportunity to gain experience and knowledge in a variety of technical fields.
I would recommend the Kwantlen CADD program to all students who are interested in gaining a rounded exposure to the various fields and directions of CADD.

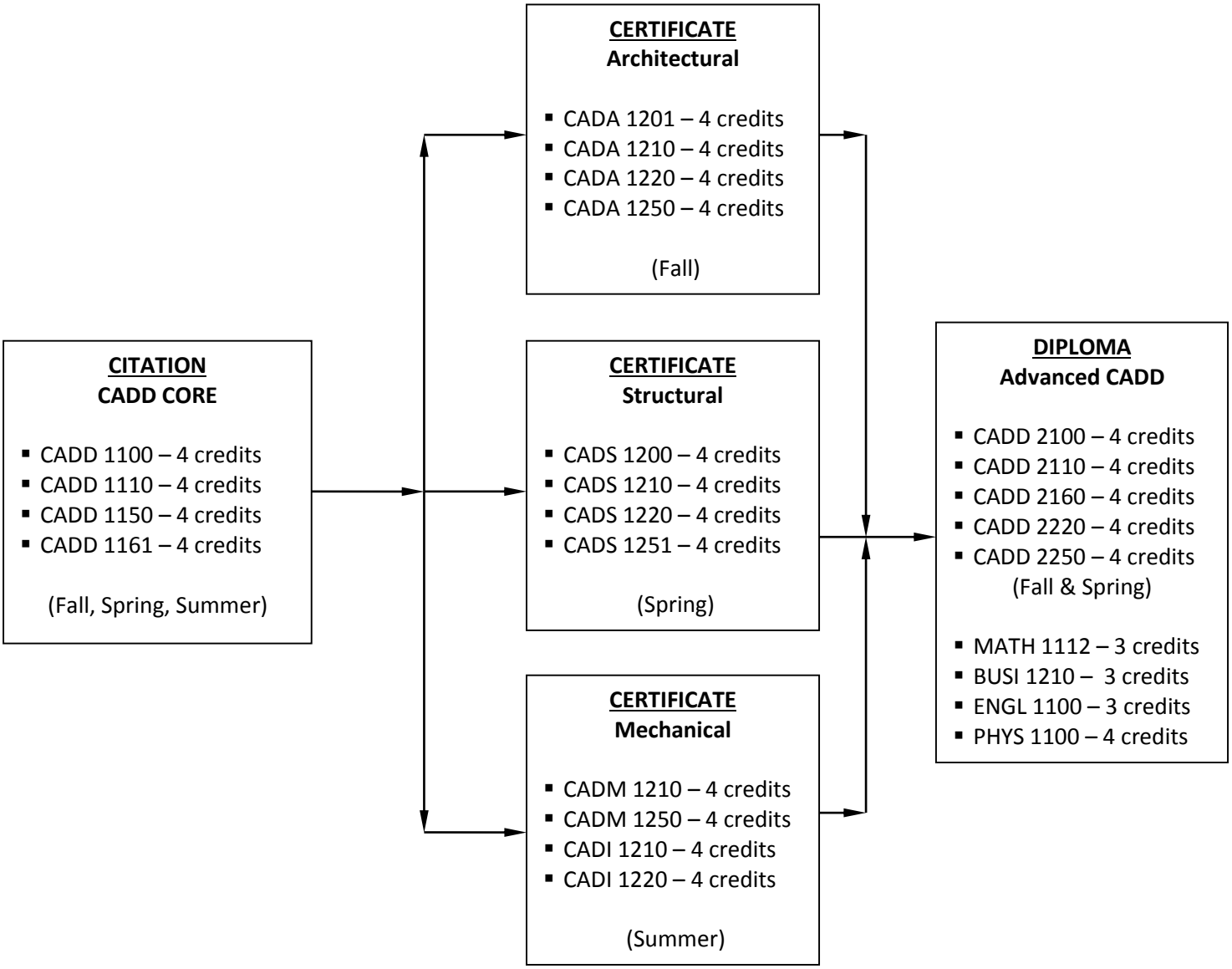
Kyle Vanderveen
CADD Graduate (Architectural)

I learned of the CADD Program through the Kwantlen Polytechnic University website. This program appealed to me as I have always been interested the design process, so I enrolled in the program with the architectural specialty. I found the Kwantlen CADD program to be a great opportunity to gain an understanding of design and learn the skills required to pursue a career in the design field.
My instructors gave me the opportunity to acquire skills that I am able to utilize every day at work. I received training in AutoCAD, Revit, Google SketchUP and Civil 3D. In addition to the software skills, my instructors taught me about the design development process used throughout a project.
Upon completion of the Architectural Certificate, I began my career with a well-established multidiscipline engineering firm in Vancouver. This opportunity has allowed me to further my knowledge of civil infrastructure projects, and a variety of other sectors including mining.
The Kwantlen Polytechnic University CADD Program provided me with a foundation on which I hope to build a great career in the engineering industry. I would recommend it to anyone interested in a career in CADD

1. Program Background and Context

a. Program Description

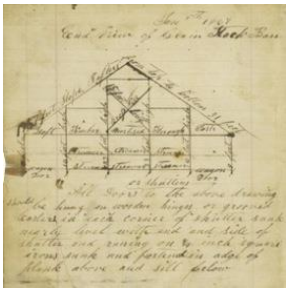
The Computer Aided Design and Drafting (CADD) Technologies program is an undergraduate Diploma program that includes multiple entry and exit points, with credentials as shown below.



For a complete list of CADD Technologies course summaries refer to Appendix Y.

Program Rationale

Since the dawn of man, humans have been conveying concepts, ideas and plans in the form of graphic drawings. The saying, “a picture is worth a thousand words” gives credence to the fact that graphic representations are an important part of human culture and a significant contributor to the built world.



Embellished with nomenclature, dimensions, specifications and instructions, technical drawings enable us to convey ideas to create every imaginable thing that humans would want to build or manufacture. Drawings ensure that the end user is delivered a product that meets expectations, including operability, delivery date, and cost.

Historically, drawings were carved on cave walls, scribed in the dirt, etched in stone, scratched on papyrus and finally drawn on paper. Today, Computer Aided Design and Drafting (CADD) software is used to develop and create two dimensional (2D) drawings and three dimensional (3D) models.

Drawings are used to describe products for all engineering, manufacturing and construction projects. For as long as humans will design and build, there will always be a need for skilled CADD designers/drafters.

Mission Statement
We facilitate learning by preparing students to think critically and analytically. This is done in a dynamic educational community that embraces emerging and experimental technology and active problem solving.

Vision
We are the premier training centre in British Columbia for Computer Aided Design, Drafting, and Management, meeting and setting Industry standards utilizing and applying the most up-to-date Graphics and Communications software. Our graduates have a wide variety of competencies and skills in the areas of Building Information Modelling (BIM), Engineering Resource Planning (ERP), and technology processes. We meet internal needs through collegial support. We integrate environmental stewardship into everything that we do. We meet community needs through the partnerships we build with schools, industry, organizations, and government.

Educational/Disciplinary/Industry/Sector context
As indicated in the CADD Full Program Proposal (Appendix B), the program was designed to address the need for Drafting/CADD graduates to be able to continually update and enhance their skills as they progress along their career path.

The excerpt below from B.C. Workfutures describes the need for CADD graduates to continually upgrade their skills:

> *"Industrial growth and increasingly complex design problems associated with new products and manufacturing have resulted in a growing demand for drafting services. However, the growing use and capabilities of computer-aided design (CAD) technologies have increased the productivity and according to industry sources, most drafters in B.C. today are CAD operators. Progressively fewer but more **highly skilled** technologists and technicians will be required to complete the same amount of drafting.*
>
> *Growth and advancements in technology are taking place at an astonishingly rapid rate. For this reason, it is necessary for technologists and technicians in all of these fields to keep abreast of developments within their area of expertise. Periods of retraining and professional development are common and **those who have updated skills and knowledge have an advantage over others when competing for employment opportunities in these fields**."*

Information located (March 2006) at:
http://www.workfutures.B.C..ca/profiles/profile.cfm?noc=225&lang=en&site=graphic

Although the quote above is from 2006, this trend in continually changing technology has not abated.

The CADD Diploma program that was implemented in September 2007 has been effective in meeting these constantly changing training needs for CADD students and graduates;

The CADD Technologies program has shown to continue to move in the direction as viewed by WorkBC to meet the current and foreseeable demands on technical training and careers.

> *Of the one million job openings expected by 2022 in B.C., 43 per cent will require trades or technical training. B.C.'s Skills for Jobs Blueprint: Re-engineering Education and Training helps align training and education with in-demand jobs.*
>
> *A key goal of B.C.'s Skills for Jobs Blueprint is to make sure that British Columbians have a seamless plan that takes them from high school through post-secondary education and right into the workforce.*
>
> *From BC Skills Blueprint – 2014*
> *https://www.workbc.ca/Job-Seekers/Skills-and-Training/B-C-%E2%80%99s-Skills-for-Jobs-Blueprint/Learn-about-B-C-%E2%80%99s-Skills-for-Jobs-Blueprint.aspx*

Since 2008, efforts to promote sustainable training and growth in the drafting/design industry for KPU and CADD Technologies students (see below) have not only grown the program by 40% but have also strengthened our partnership with industry, secondary schools and other post-secondary institutions.

1) Multiple entry and exit points allow students to return for different credentials as required by industry needs

2) Multi-tiered program requirements allow students to enter the Certificate program and then upgrade Math and English to meet the 2nd year requirements

3) Evening and blended courses allow Certificate graduates to work in the industry while earning a higher credential

4) High school partnerships (CTC program) that offer a dual credit program give CTC students advanced training and accessibility into the second semester specialty immediately upon graduating high school.

5) Advanced training in 3D software for each specialty area allows students to meet industry needs

6) Several program revisions have allowed the CADD program to respond to industry changes (see Appendix C)

Comparison to other similar programs in B.C.

The CADD Technologies program began as a one year vocational drafting program which ran successfully for 25 years. In 2008 the Drafting program was transitioned into a two year undergraduate diploma program and consequently changed its name to CADD Technologies. This transition will be discussed further in this document. At the time of the transition, there were four other one year vocational drafting programs in B.C. Now, KPU is the only drafting program in B.C. to offer a 2 year undergraduate credential in drafting. In the last seven years since the transition, the CADD Technologies program has undergone many changes to meet industry demands, partnerships and pathways for entering and exiting students, and is now regarded as a model for other institutions among other post-secondary drafting programs.

It is anticipated that the student numbers in the CADD program will increase in the next 5 years due to several partnerships and pathways that have been developed to encourage Certificate graduates from other CADD related programs to pursue undergraduate credentials through the KPU CADD program.

The KPU CADD program is the only undergraduate "Drafting" program in B.C., and the only program that offers a second year Diploma. As a result, we have articulated a number of agreements that permit students from other institutions and our own to enter into various points of the CADD Technologies Program based on their previous education. It is also the only CADD program that offers a Mechanical Specialty in B.C. Similar programs in B.C. are listed below.

Institution	Program Name	Credits Voc/UG	Credential	Specialties	Accreditation ASTTBC
KPU	CADD Technologies	UG	2 Year Diploma	Architectural Mechanical Structural	Seeking a formal academic review through grad application for certification
VCC	Drafting Technician	Voc	1 Year Certificate Diploma (2nd Specialty)	Architectural Civil/Structural Steel Detailing	No
B.C.IT	CADD and Graphics Technician	Voc	1 Year Certificate	Architectural Structural	No
UFV	Drafting Technician	Voc	1 Year Certificate	Architectural	No
NIC Terminated in 2014	Drafting	Voc	1 Year Certificate	Architectural Civil	No

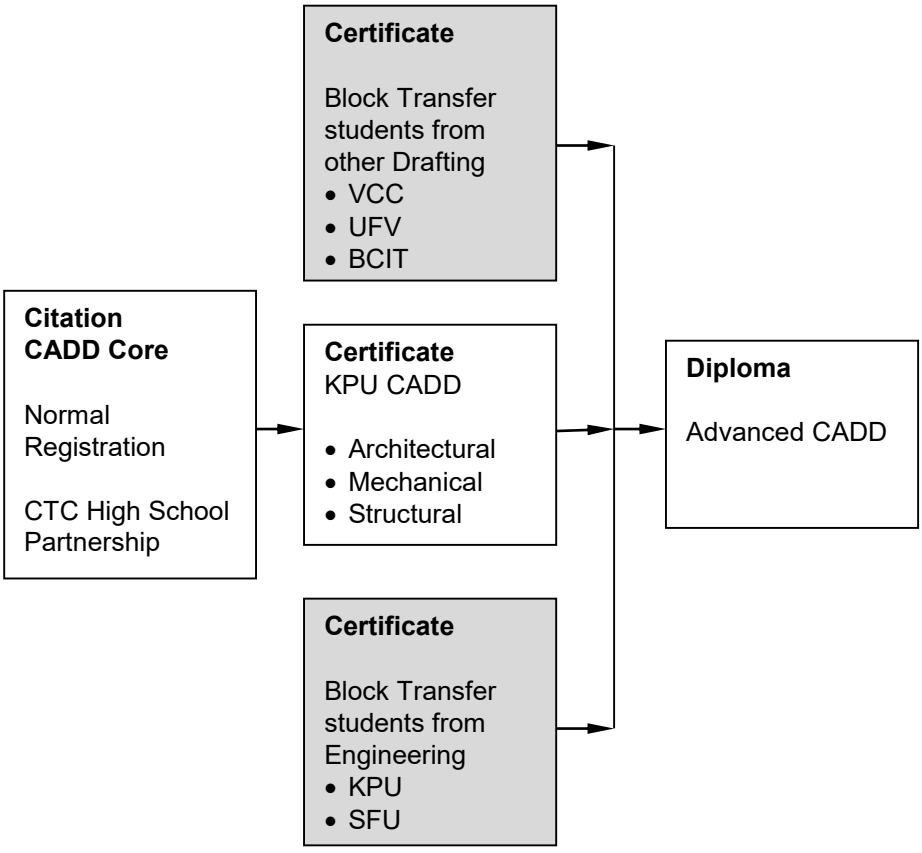


Table showing partnerships entrance points (shown in grey)

Given the flexibility of multiple opportunities to enter and exit the program with a credential, we feel these efforts are consistent with KPU's Mission and Mandate with regards to access.

> *"KPU's history and purpose as a polytechnic institution integrates college, trades, and university experiences. We respond to community, regional, industry, and market needs through a distinctive variety of programs, research initiatives, and community partnerships. Transition programs, multiple entry points, international education, and bridging opportunities demonstrate our commitment to accessible lifelong learning across a broad range of educational options. We view access to education as the pathway to citizenship."*
>
> *http://www.kpu.ca/calendar/2014-15/introduction/mission.pdf*

b. Academic Unit

The CADD Department consists of regular faculty, staff and NR1's on demand that specialize in different CADD areas.

Name	Regular	Specialty	Years FTE	Contributions to Program
Daryl Massey Department Chair	83%	Architectural Sustainable Design	5	• Current Dept. Chair
John Sprung	100%	Architectural Computer Network	25	• Past Dept. Chair • Network/Computer specialist
Joanne Massey	100%	Mechanical Professional Practice	23	• Past Dept. Chair • External agreements coordinator • Marketing • Tech Ed. Innovations
Stephen Kennedy	100%	Structural Civil	22	•
Christina Heinrick	100%	General (some of all Specialties)	20	• Past Dept. Chair • Dept. Scheduler • High school/partnership liaison
Michael Whitmore	50%	Mechanical Computer Network	3	• Industry liaison
Todd Bolenback Program Assistant	42% (20 hours per week)	Program Support Computer Network	10	•

c. History and evolution of KPU's CADD Technologies Program

Vocational Certificate Program

As previously mentioned, the first Drafting program at Kwantlen College was started in the late 1970's while the college was still part of Douglas College. The Drafting program at the Newton Campus offered a certificate in the Industrial specialty which included projects in Basic Drafting, Architectural, Surveying, Piping and Conveyors. This program had two streams; a full time daytime and a full time evening.

Two years later, a second Drafting program was started at the Richmond Campus. That program offered certificates in the Structural and Electrical specialties. Both specialties included projects in Basic Drafting and Architectural as well as the Structural / Electrical projects in the respective stream. Both the Structural and Electrical streams were full time in the daytime.

In 1981, Kwantlen College split from Douglas College and became a self-standing college.

In 1986, an additional instructor was hired at Newton to run CADD upgrading courses and Continuing Education courses in the evening. The full time evening Industrial stream moved to the daytime.

In 1993, an additional regular instructor was hired to expand the Drafting program to the Langley campus. The Langley Drafting program offered certificates in the Mechanical and Structural specialties. Both specialties included projects in Basic Drafting and Architectural as well as the Structural / Mechanical projects in the respective stream. The Mechanical included projects in Heating Ventilating and Air Conditioning (HVAC) and Conveyors, but was discontinued in 1995. There was one full time stream in the Langley Drafting program.

All three of the full-time daytime Drafting programs (Richmond, Newton and Langley) were vocational, and operated on a continuous intake self-directed model. Students could enter the program at any time of the year, whenever there was an opening, since the program ran for 12 months per year. Students would work at their own pace with guidance and feedback from the instructor.

The duration of the certificate was intended to be one year, but varied by student's progress. Although some students completed their certificate program in less than a year, many students took more than a year to complete their certificate. Some students would take a second specialty, either at the same campus as their first certificate, or at another campus that offered the specialty that they desired.

Grading was done on a Mastery basis. The 'M' grade was awarded when a student achieved an 80% grade from the instructor. Students would often submit their assignments several times before they achieved 80% and could move on to the next project.

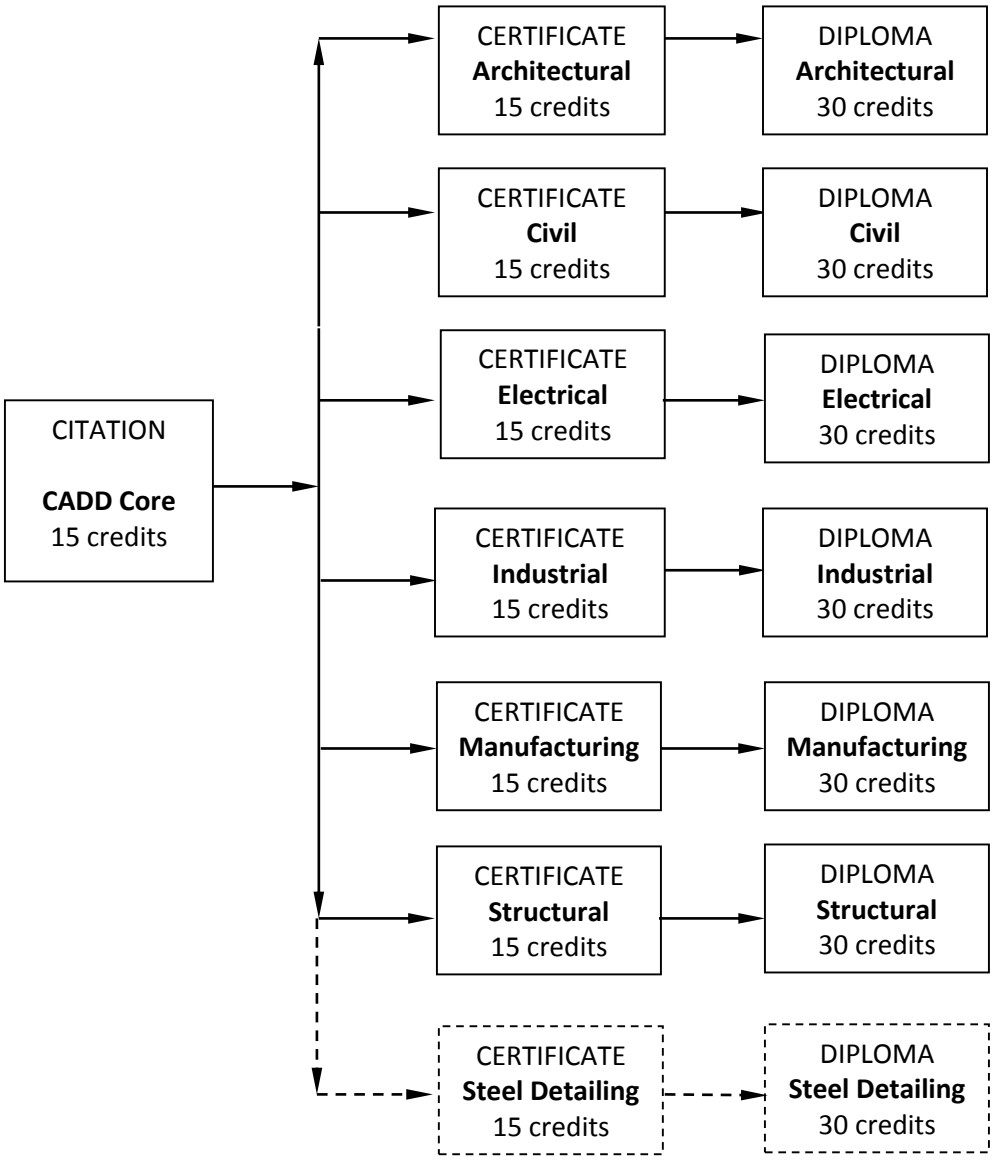
These vocational Drafting certificate programs ran continually as described above until April 2003. At that time the Structural instructor in Richmond retired and was not replaced, and the Electrical program was moved to Newton. The Richmond Drafting program was discontinued.

Between April 2003 and September 2007, the Newton Drafting program offered Industrial and Electrical certificates, and the Langley Drafting program continued to offer a Structural certificate.

Undergraduate Diploma
In 2004 the Drafting programs in Newton and Langley were given a mandate by the VP Academic to create a Diploma program to be implemented by September 2007.

With such a significant change to the program, it was decided at that time to convert the program to undergraduate credits, and to add more specialties, in addition to adding a second year.

In 2005 a Full Program Proposal was approved with the format as indicated below.
(See Appendix B)



Both the Newton and Langley Drafting programs moved to common quarters at the Cloverdale Campus in February 2007.

Coinciding with the implementation of the new undergraduate diploma program in September 2007, the CADD program was reduced to 3.75 FTE, which included 3.5 regular faculty, and .25 release time for the Department Chair position. This served 40 students per year, and did not enable us to run any second year courses.

Over the next 7 years, bringing us to the present, the program evolved into the current format which is displayed on page 1. The multiple diplomas were combined into one common diploma called "Advanced CADD". These second year courses were implemented in January 2011 and we produced our first CADD diploma graduate in June 2012.

At the present time, the CADD program is operating with 5.25 FTE which serves 60 full time and over 40 part time students per year. Since the launch of the new undergraduate program in 2008, the CADD Technologies has grown 40%.

Conversion to Computer Aided Design and Drafting

In the early 1980's, the three Kwantlen drafting programs became early adopters of a new technology; Computer Aided Drafting and Design (CADD).

This transition was disruptive to the program, because much time and resources were spent to acquire and learn technology that had not yet been completely embraced by industry. The Drafting instructors at that time were visionary, and understood that even with resistance in industry, this CADD technology was here to stay. The transition took several years to complete. During the early stages, the CADD program was delivering about half its content on the drafting board and the other half on the computer until finally in the mid-1990s the drafting boards were removed, and CADD became the only platform in the program. All CADD drawings were 2 dimensional (2D) and were created using one brand of CADD software. The Vocational Drafting program was one of the first post-secondary institutions in Canada to become an Authorized Training Center (ATC). ATC status was authorized by Autodesk, the makers of AutoCAD and related software. The Drafting program was an ATC from the middle of the 1980s to the mid-1990s. One of the restrictions on our program in maintaining an ATC status was that software not supplied by Autodesk could not be on the same computer stations as Autodesk product computer stations. The Drafting program began to offer training in non-Autodesk specialized software as required by the industry and therefore we were forced to drop the ATC status.

This technology evolution in the program continues to be an unrelenting force. Shortly after 2D CADD was fully embraced came the transition to 3 dimensional (3D) software and applications. 3D was introduced into the software training, but not applied in actual projects.

When the CADD Diploma program was implemented in September 2007, it included "vertical" products, which are specialized brands of 3D software with different features for different specialties. Previously all drawings had been done on the one brand of 2D software, which the CADD program continues to provide instruction in, in addition to many the vertical products.

The need for additional software, equipment, training and subject matter experts (SME) continues to challenge the time and resources of all CADD faculty and staff.

d. Students Served

Year	Program				Total	Comments
	Richmond Campus	Newton Campus	Langley Campus	Cloverdale Campus		
1981	2.5 FTE 40 students	2.5 FTE 40 students			5.0 FTE 80 FT students	FTE=Regularized full time equivalent faculty
1986	2.5 FTE 40 students	3.75 FTE 60 students			6.25 FTE 80 FT students	
1993	2.5 FTE 40 students	3.75 FTE 60 students	1.25 FTE 20 students		7.50 FTE 100 FT students	
2003		3.75 FTE 60 students	1.25 FTE 20 students		5.00 FTE 80 FT students	Richmond Structural Instructor retired and was not replaced. Richmond Electrical Instructor moved to Newton, but no FTE transferred to Newton
2007				4.0 FTE 40 students	4.0 FTE 40 FT students 20 PT students	Instructor laid off Changed to Mode 20 from Mode 24 Funding included .25 Dept. Chair
2010				40 FT students 30 PT students	4.5 FTE 40 FT students 30 PT students	Added 2nd Year first semester
2012				40 FT students 40 PT students	5.00 FTE 40 FT students 40 PT students	Added 2nd Year second semester
2013 To 2015				60 FT students 20 PT students	5.5 FTE 60 FT students 40 PT students	Added Summer Core

NOTE: Prior to September 2007, due to the continual, 12 month nature of the programs, coverage was covered for PD and Vacation (3 months total) for each full time stream (1.25 FTE).

It has been found that many students do not apply for the Citation or Certificate credential and wait to apply for their terminal credential, the Diploma. Since 2008 43% of CADD students that were eligible to apply for a credential did not apply for one. Given the multiple exits of the program accurate numbers on potential graduates are not attained. A better method to record all potential graduates at all levels of achievement will be sought.

Credential	Number of credentials granted
Citation in CADD Technologies	50
Certificate in Architectural	51
Certificate in Structural	45
Certificate in Manufacturing	12
Certificate in Industrial	8
Certificate in Mechanical	19
Advanced Certificate in CADD Technologies	1
Diploma in CADD Technologies	43

Graduation statistics from Spring 2008 – Summer 2015.
This is not an accurate account of eligible credentials.

2. Review History and Scope

a. Previous Program Review, if applicable

Although the CADD Technologies Program has not undergone program review, in 2008 one of the CADD Technologies faculty members conducted a research project (Appendix X) to analyze the affects and outcomes of the academic transition process. The research focused specifically on the CORE term (first semester) as the CORE term outcomes are to develop foundational and visualization skills that are then built upon and applied in the second semester and second year courses. As a result of the study in 2008, the Dept. felt the research document would be a good tool to use in this review to uncover any improvements that the study revealed as an unintentional consequence of the program change. Therefore, this review will make reference to the research project to show how recent changes were rationalized.

b. External Accreditation

In planning to apply for the Canadian Technologies Accreditation Board (CTAB) accreditation, the CADD program prepared a matrix to compare its strengths to the National Technology Benchmarks for the Technician Level. These benchmarks can be found at in Appendix O and http://cctt.ca/template.asp?id=120e06ba65a44d2b81f4004ccc7e68dc

This endeavor is on hold as the local technology chapter, Applied Science Technologists and Technicians of B.C. (ASTTBC) no longer recognizes CTAB accreditation. They now recognize Technology Accreditation Canada (TAC) accreditation, but TAC does not yet have an accreditation process in place. ASTTBC has shown great interest in the ability of CADD Technologies graduates in obtaining accreditation. To show their support ASTTBC attended and presented at our 2014 Alumni event.

c. Unique to this program

Through a variety of programs assessment sessions (S.O.A.R, C.O.R.P. and IA & P session, Appendix M) during the past 5 years common patterns of challenges and opportunities have emerged. The subsequent S.W.O.T. table is a collective of commonalities that emerged from the various program assessments.

Many of the findings have begun to be addressed through a range of initiatives and will be discussed further in this report.

Compilation of program challenges and opportunities
Included assessment sessions are:

- Department strategic planning session S.O.AR. and C.O.R.P – Fall 2011
- IA & P session – June 2014

STRENGTHS	WEAKNESSES
• The only undergraduate diploma CADD program in B.C., offering multiple specialties with multiple credentials (See Appendix B)	• Ever changing software and software version updates make it a challenge for instructors to keep current. New or updated software and workplace changes require o Research into applicability

- Undergraduate credits allow CADD graduates to seamlessly continue their education into higher credentials
- Semester based courses
  - provide flexibility that allows articulation with other undergraduate programs
  - allow flexibility for student's educational plan
  - allow for transfer of credits from other institutions towards CADD credentials
- Multiple credentials (exit points) allow certificate graduates to work in the CADD industry while pursuing a Diploma
- Part time studies, and blended courses allow certificate graduates to work in the CADD industry while pursuing a Diploma
- Strong relationships
  - with industry through PAC and hiring of CADD graduates
    - companies request KPU CADD grads through the program
    - companies come to KPU to recruit CADD grads
  - with High Schools through the Career Technical Consortium (CTC) partnership
    (See Appendix E)
  - with High Schools through the Qualifying Assessment which gives credit for prior learning to students with Drafting 11 and/or 12
    (See Appendix F)
  - with SFU Mechatronics Engineering through the MOU
    (See Appendix I)
  - with KPU Engineering through the MOU (pending)
    (See Appendix J)

  - Continuous instructor training and upgrading
  - Continuous modifications to teaching and lecture materials
  - Continuous changes and modifications to course outlines

- Location
  - KPU Tech is "out of the way"
  - Busses for evening courses make it difficult for students to commute, even with the inter-campus shuttles
  - We tried to run the Summer 2015 CADD Core at Surrey Campus but could not get space
  - Shrinking support for students (Admissions, Counseling, Advising, Learning Center etc.)
- Being an undergraduate semester based program, we do not share an alignment with other programs in the Faculty of Trades and Technology in regards to scheduling, admissions, or other curriculum and program considerations
- As the only undergraduate/semester based program in the Faculty, our needs and requirements are often not often understood by peers and administration
- Ever changing applied Industry technology and expectations make it difficult to:
  - Find subject matter experts (SME)
  - Upgrade relevant skills for faculty
  - Upgrade curriculum
  - Provide relevant equipment and software needs for students
  - Keep up with industry relevance
  - Keep up with Program Revisions necessary for approvals through Senate
- KPU Institutional Marketing does not appear to include CADD in its consideration. For example: there are no photos or representations of the CADD dept. used in high visibility efforts such as the Guildford Mall posters or billboards. In the Visions 2018 Strategic Plan handbook there is not a single mention or photo of a

○ with CADD Alumni (through the annual Alumni Gathering and LinkedIn) (See Appendix K) • Good Articulation with other CADD Programs in B.C. ○ Block transfer agreements in place for VCC, UFV and B.C.IT vocational Drafting graduates to enter into the 2nd year KPU CADD Diploma courses (KPU grants 30 undergraduate credits to transfer students) (See Appendix G) ○ A CADD a Transfer Innovations project was completed through BCCAT that describes how the KPU CADD program fits in with other CADD-related programs at B.C. institutions (See Appendix H) • Good advanced pathways for CADD graduates ○ into the third year of the KPU BBA in Entrepreneurial Leadership and HR (See Appendix U) ○ into the third year of the KPU B.Tech. in Information Technology ○ into the third year of the Construction Management degree at BCIT • Reputable instructors (as indicated in the Student and Alumni surveys) • Good collegiate relationships. The faculty members follow a sound practice to conduct meetings and planning • Strong relevance and validity with industry (program has changed several times to keep up with industry demands) (See Appendix C) • Good placement of grads in jobs (100% of CADD grads who wish to work in the industry find work placement [anecdotal]) (See Appendix D)	CADD student or the CADD program. • Institutional support from Admissions/Registrar does not work well with our admissions requirements. The current system does not allow us access to program applicants or encourage enrollment in our January and May intakes. There is no applicant "wait-listing" so unsuccessful applicants are unceremoniously "dumped" and sent to the back of the line **if** they choose to re-apply. We do not feel that Program Applicants receive enough direct information about KPU Admissions policies or what options they have when they do not meet admission requirements. Our own informal research has shown that these things have led to many frustrated student applicants, many of which end up going elsewhere. • Changing Admissions personnel. We have seen a very high rate of turn-over in our assigned admissions person (5 this year alone). This has led to an inherent lack of familiarity with the CADD program. The CADD Admissions Protocol was developed in September 2014 with Michael Bluhm to aid in this problem. Our most current correspondence with Admissions indicates that this Protocol is no longer being followed and our concerns and student needs remain unattended. • CADD students have not been applying for credentials

• Good facilities (computer labs, software, equipment) • Adequate operating budget • Comprehensive CADD Department Minutes of Meeting since Sept 2007 • Experiential Learning in CADM 1210 • KPU has a U-Pass • Three intakes to support multiple specialties and attrition • Have access at Cloverdale to hands on opportunities • We have embraced Vertical Products. Foundational software like AutoCad have developed specialized “Vertical” Products such as Civil 3D and others. • Interdisciplinary project collaboration with Metal Fab, Kwantlen and SFU Engineering students, Electrical, Building Construction, Industry, Fine Arts, Foundations office, VCC instructor • CADD We integrate environmental stewardship into everything that we do. • support other departments (PSCM, Carpentry, applied Science, ID, Welding) • Part of a Kwantlen Research Group • Community involvement (Train project – CADD, Building Constructions, volunteers, donations, Chamber of Commerce, City of Surrey, local developers) • Student centered • Standard based • We are a current sponsor of the Vancouver AutoCad User Society (VAUS) • KPU CADD grads have an advantage over other non-undergraduate drafting programs in B.C. in that their credits are transferable and	

allow for future educational/training opportunities • The "Can Do" attitude of our Kwantlen instructors and their individual expertise and experience	

OPPORTUNITIES	THREATS
• An ever increasing need for CADD upgrading for Professionals (Engineers, Foreign Trained Professionals, Surveyors, Interior Designers) (See Appendix S) • The growth in need for training for International students • The growth in need for training for Aboriginals (See Appendix P) • CADD training required for Interior Design, Engineering and Horticulture students at KPU • The opportunity for more "Experiential" learning through the Trades programs at KPU Tech (See Appendix R) • The implementation of the B.Tech. in Trades Innovation at KPU Tech (See Appendix Q) • The growth in 3D printing and prototyping • Emerging technologies like 3D Laser scanning • Accreditation with TAC (now that CTAB is no longer recognized by ASTTB.C.) (See Appendix O) • Articulation with TRU for CADD Diploma grads to enter the third year of the TRU Building Sciences Degree (See Appendix N)	• Budget constraints at KPU o Made a well-researched and well supported request for a Coop element in the CADD Technologies program but was denied, even though this proposal was completely in line with the "Polytechnic" mandate (See Appendix T) o Marketing of our program continues to be almost non-existent, as is our Marketing budget. • Leadership at KPU is constantly changing, making the direction and vision difficult to adapt to on a continuous basis • Continuous Dean turn over o Lack of program history o Lack of faculty familiarity o Lack of program familiarity o No champion for our program to communicate with "higher ups" due to lack of program and structure knowledge • Subject Matter Expertise (faculty are not "interchangeable") o With a large variety of expertise and software, each instructor can specialize in two areas at the most, but are often asked to change direction with very little lead time to accommodate utilization issues.

- The possibility of adding Steel Detailing to the Structural specialty
- The KPU CADD program can become a transfer program for the other 3 Drafting programs in B.C. into the CADD Diploma, and then on to other degrees (See Appendix G)
- Coop Opportunity (See Appendix T)
- Hands on – go building the things that we design
- Flow Diagrams, Document control, Estimating, Project management courses/specialties
- Foreign Credentials (model from AIB.C.) – Kwantlen credential as a bridge back into industry
- Opportunity to offer courses part time and in conjunction with other departments
- Sustainability and Green Technology
- Identify and resolve Admissions issues
- Improve Student satisfaction
- Improve consistency within the Curriculum (CADD standards)
- Connect with high school drafting programs by having our student making posters on various topics, such as standards and giving them to the high schools for their classrooms.
- Improved marketing – including directing prospective applicants to resources and open house
- Dedicated faculty member at the Open House on a given night
- Working with Emergency Planning (Guy Corriveau) for housing, command centres, etc.

- Ever changing technology, needs in industry, and articulation makes it difficult to meet all the Senate procedures and deadlines when making program changes that are driven by industry.
    - Program changes since September 2007 (See Appendix C):
        - Changed Specialty 2nd Year Diplomas to one common Diploma (Advanced CADD)
        - Changed Industrial and Manufacturing Certificate option to a compiled Mechanical Certificate
        - Replaced CADD 2210 course with CADD 2220 course
        - Increased credits in 3 courses (pending)
        - There is little documentation for Senate procedures and requirements. This poses challenges for the Curriculum Committee
- Increasing entrance requirements (C+ in English 12)
- Admission procedures and requirements are challenging
    - The Admissions person who looks after the CADD program changes 1, 2 or more times per year
    - Policies are procedures are unclear, and often change depending on who is being asked, lack of communication hinders full understanding of changes (See Appendix L)

• Development of Professional, International, and Aboriginal training • Development of program for foreign trained engineers • Professional development – Continuing Education course outlines already prepared • Co-Op study – approved with FPP • Senate approved Bachelor of Trades and Technology Innovation • Anticipate off-campus course offerings for Interior Design and Horticulture • Planning an aggressive effort for involvement in new KPU Civic Plaza • Minors • Actively pursuing articulation with other degree programs and institutions for advanced student pathways: o TRU – Bach. Degree in Building Science o AIB.C. o ASTTB.C. o KPU Eng. – Pending MOU approval o SFU Mechatronics – In place MOU	

The above analyses were conducted with current faculty and staff. Interestingly, students gave similar feedback and recommendations.

> *"It will be a great idea if our school makes some connection with the industry/firms/other field related employers, where we can go and train ourselves while we are in program or may be have a co-op kind of opportunity."*
> *Student survey comment*

3. Quality of Educational Design

a. Entry into the Program

Students that enter into the CADD Tech. program come from a variety of backgrounds. Drafting or AutoCAD experience is not required, however we have found that many students enter into the program with some experience in one of the above listed.

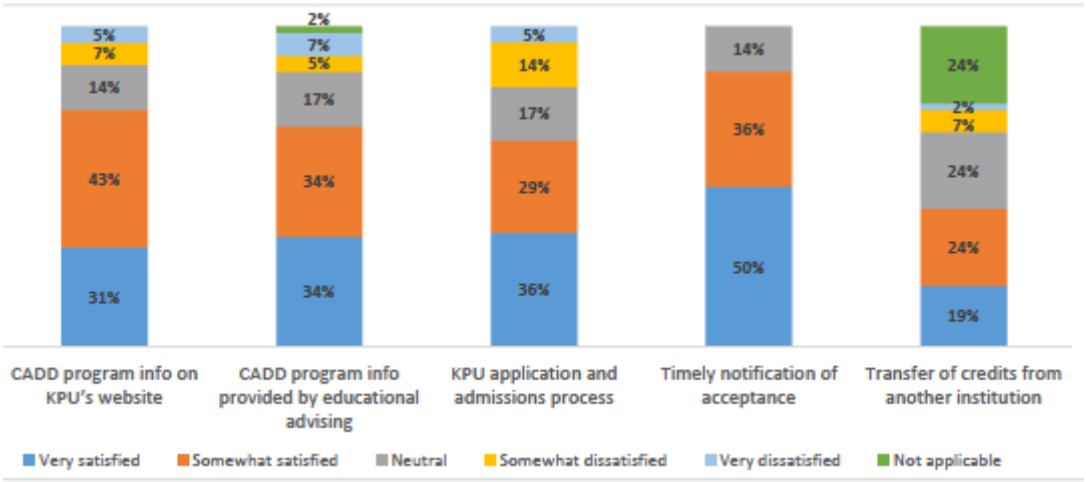
Through the student survey it was shown that 85% were influenced (major and minor) to choose the CADD Technologies Program at KPU because of the program curriculum (comprehensive and diversity) and 84% based on advanced CADD training.

Once students began their studies, 79% reported that they were overall satisfied that the course material is relevant to their goals and 80% felt they were prepared for advanced courses.

General entry
Students enter the program upon meeting the program and university entrance requirements. Entrance requirements are high school graduation with a C+ in English, or equivalent, and a C in Principles of Math 11, or equivalent. Students who do not meet the requirements may be tested and/or upgrade to meet the requirements. In 2012 the CADD Technologies Program and the Learning Center developed a CADD Math Placement test for applicants not meeting the math requirement.

Students are admitted into the program in a variety of ways and have various educational backgrounds. Student surveys of CADD students showed that 37% completed high school only, 25% completed some post-secondary education but without completing a credential, and 33% completed a credential in post-secondary prior to joining the CADD program.

Results regarding services and supports can be seen in the chart below. The majority of students are satisfied with the admissions process and acceptance into the program.



There has been an increase of International students accepted into the CADD program since the start of the new undergraduate program. Acceptances have gone from one in 2009 to ten in 2015. Prior to 2009 there were international students accepted into the program. We do not have data on the number of international students accepted into the previous Vocational program. We believe that international students are seeking programs that provide employable skills which also reflect the B.C. Skills Blueprint. Given this, there may be opportunities of increasing enrollment further and specialized training for international students.

High school entry

High school students can enter into the program and take the entire first semester (Citation) under a CTC (Career Technical Consortium) partnership agreement with Surrey, Delta, Richmond and Langley school districts. Students in grade 11 and 12 after an application and interview process are admitted into our CORE courses that have been scheduled part time in the evenings. CTC student courses are scheduled as:

- Fall – CADD 1150
- Spring – CADD 1110
- Summer – CADD 1160

The fourth course, CADD 1100, of CORE is obtained through a qualifying assessment test. The qualifying assessment test allows students to challenge CADD 1100 that have taken Drafting 11 and/or 12 in a B.C. high school.

Transfer students entry

Transfer students enter directly into second year diploma stream if they meet the qualifications of block transfer agreements with VCC, B.C.IT, UFV and TRU (See Appendix G). These agreements allow students who have completed a Drafting Certificate at their institution to enter into our Diploma level courses.

Students from SFU's Mechatronic Engineering Program have the opportunity to enter into our first year, second semester Mechanical specialty, as per Memorandum of Understanding (MOU) (See Appendix I).

We are currently negotiating an MOU with KPU's Engineering that will allow KPU Engineering students to enter into our first year, second semester specialty.

We are currently in articulation negotiations with TRU's Building Technology Degree. See Appendix N.

The variety of entrance opportunities speaks to KPU's vision and values:

> *"Authentic external and internal relationships and Access and Flexibility"*
> *Retrieved from KPU's Vision and Values*

Recruitment

Faculty members within the program assist in many ways in recruiting efforts. We are a consistent presence at all open house events within the institution and at high schools. With the newly adopted "try a trade" initiative, the CADD Technologies has proven to produce fun and interactive ways to engage the public and give them a little taste of "our world". At the most recent Delta Trades and Technology Fair, our "try a trade" fast became one of the most popular booths to stop by, so much that our faculty members had a difficult time keeping up with the demand.

We do our best to educate the local high school facilitators and instructors. We have launched and maintained communication and marketing campaigns targeted at Technical Education teachers and facilitators that recommend our CTC high school partnership. Through this initiative an annual calendar evolved showcasing graduates and current students engaged in activities such as field trips. This calendar has now proven to be an effective tool to connect new students with the program. (See Appendix D)

We have participated in the B.C. Secondary Technical Education Conference by offering seminars and placing CADD Tech. program brochures in attendee's registration packages.

Over the past several years, we have made great efforts to establish and maintain our own student database record. Our intention for the database is two-fold. First of all, to keep an accurate record of potential credential earners to accurately document successful achievers. By keeping our own

database on students and the courses they complete we can retrieve information on students. Secondly, we have used the database to recruit students. By keeping a record of what students have completed, we have directly marketed to those that did not complete all courses to earn a credential and to promote upcoming specialties for students that did not complete that term. This method of recruitment proved to be fairly successful, however the time to maintain the database has also proven to be time consuming and we have not yet formalized a systematic process for this.

In courses that tend to have low enrollment, part time and summer CORE, we have increased enrollment by promoting to the greater student community. As a result we have seen enrollment in part time course offerings from Design, Arts, Business, and Science and Horticulture students.

Enrollment Concerns/Barriers

Students have displayed many frustrations over the years to show that there is disconnect between the program and administrative processes.

Since the transition from a Vocational to Undergraduate program 7 years ago, the CADD Technologies program has been subject to many KPU administrative changes. These changes have been both procedural and organizational and have proved to have generated many challenges for student's enrollment and retention in the program. Inconsistent staffing and turnover in support and administration have created many misinterpretations of the variety of entry points of the CADD Tech. program and requirements for each. A lack of consistent communication with the Dean's office on enrollment and registration issues each term has shown their lack of understanding on how students are admitted into the program. This can be attributed largely to the many Dean's our Faculty has had in the past 8 years. As a result, the effort required to facilitate admissions process is a great burden on faculty in order to actively recruit and assist students in their enrollment process.

Applicant waitlists do not roll over to other terms. Instead applicants who do not get offered a seat in a particular semester are dropped and do not automatically roll over to the following term. This does not give students any advantages into enrollment or fair opportunity. We received reports that applicants are often deterred by this process and from re-applying and subsequently seek their education elsewhere.

Without constant communication from faculty members, primarily the Chair, with applicants, we feel that enrollment numbers would become compromised. Misinformation to students has been a recurring problem due to a high turn-over of Admissions staff assigned to the CADD program. For example, it was found during one Admissions staffing that students were being turned away when inquiring into part time courses. We do offer part time courses, and this is an indication of the lack of understanding of our program in Admissions. As a result, the Department Chair had instructed the Admissions personnel to direct any Drafting/CAD inquiry to them so they can assure they were admitted properly.

Acceptance letters sent to CADD applicants have been inconsistent in the past and have not given information regarding the waitlist process, thus hindering many to get a seat in the following term.

A stereotypical concern with enrollment in Trades and Technology programs was that the programs did not lead to degree granting programs. The perspective that the Vocational Drafting program had seen this concern realized and incoming students did not intend to pursue further education beyond the Drafting Certificate. With the new Undergraduate Diploma program we feel that we are beginning to overcome this concern and are finding that students are coming in with increased educational experiences, intentions to pursue a degree and an increase in international students. The image of the CADD Technologies program has changed and continues to change, for the better.

In September 2014 the CADD Tech. program developed an Admissions protocol procedure that was vetted and approved by the Registrar's Office to aid in the high turn-over of Admission's staff (Appendix L).

b. Learning objectives/outcomes

The CADD Technologies program supports KPU's mandate:

> *"We respond to community, regional, industry, and market needs through a distinctive variety of programs, research initiatives, and community partnerships. Transition programs, multiple entry points, international education, and bridging opportunities demonstrate our commitment to accessible lifelong learning across a broad range of educational options…"*
>
> *http://www.kpu.ca/calendar/2014-15/introduction/mission.pdf15/introduction/mission.pdf*

The purpose of the program is directly relevant to employment opportunities for graduates and allowing accessibility to bridge into other programs after a diploma has been achieved.

The objective of all CADD courses is to apply all learning outcomes to an assignment or project relevant to a real world situation. The first term (CORE) encourages visualization skills to develop, computer skills to apply projections and promote understandings of project progression and engineering/architectural office environments. Specialty semesters include real world projects where students formalize understanding of process utilizing criteria, codes and standards. Second year CADD courses offer advanced CADD coursed to further nurture project understanding, office management and system processes.

As found in the student and alumni surveys, students were very satisfied that they had achieved the skills to develop and produce technical drawings and models at 46% and 49%, respectively. Students that felt they were somewhat satisfied with achieving those skills were 36% (current students) and 30% (alumni). For both groups only 3% were dissatisfied with their abilities to develop and produce technical drawings. (Appendix A)

Since the new academic model of the program began there have been many changes to both the objectives of courses and to the structure. We feel that this constant adjustment maintains up to date curricular outcomes, and that by monitoring student success we have made improvements to course schedules that better meet student's needs and industry expectations. See Appendix C for all program revisions to date.

c. Program Curriculum

Students rated all aspects of the program favorably, with the exception of covering standards. However, 70% of alumni are overall satisfied with graduates' ability to interpret and implement standards and codes (Appendix A). We will investigate this area further as all course projects are mandated by standards and we may find that students are not recognizing the connection of standards to application of exercises and projects.

Overall program ratings- Retrieved from DACSO survey	
Quality of Instruction	86%
Topics relevant	100%

Covers standards	29%
Organization of program	71%
Practical experience	100%

Although the exercises and projects that are used in our specialty courses are real project examples, we have found in the student and alumni surveys that students feel a disconnect of the course objective to real life situations. Areas that showed some concern of disconnected theory to practice and technical writing skills. It is likely that students feeling of disconnect is due to their lack of experience in the CADD industry. Recent revisions to course outlines have adapted additional outcomes with regards to technical writing to strengthen the student's confidence in this area.

> *"Expanding technological skills and specialties are well focused."*
> *"I enjoyed most of the topics covered by the course and feel like it gave a good introduction."*
> *Student survey comments*

In areas such as rigor, length and depth of terms, an overall high satisfaction was reported. This is enlightening information regarding how we have improved in this area, as we have not had any information on these topics since a 2008 research report (Appendix X) had indicated students were not satisfied with the pace of CORE, organization and level of consistency. There was consensus that communication among instructors were lacking in the newly developed academic model, but students now feel satisfied with the overall structure of the program.

	Per cent				
18. How satisfied are you with the CADD program, in terms of:	Very satisfied	Somewhat satisfied	Neutral	Somewhat dissatisfied	Very dissatisfied
Length	35%	41%	24%		
Depth	32%	43%	22%	3%	
Breadth	32%	41%	27%		
Rigor	36%	39%	22%	3%	
Overall	32%	51%	14%		3%

Extracted from current student survey (Appendix A)

d. Core Competencies and Essential Skills

Core competencies and essential skills are at the heart of our course objectives. Outcomes of the CADD Technologies program are geared toward real life situations and projects. Most topics covered in a lecture format are followed up with an assignment to reinforce the concept as well as to encourage students to make connections to real life work. The main goal of the program is for graduating students to obtain meaningful employment. It is critical that students develop core competencies and essential skills while completing projects in a meaningful way. As a result of this pedagogical ideal, the CADD Technologies program reflects and analyzes course outlines and assignments while consulting with our PAC regularly to ensure that initiatives are continuing to meet industry needs.

In the continued effort to strive for excellence in all aspects of the program, we have seen that the efforts to "tweak" the structure of the program as well as the course objectives are beginning to pay

off. After major revisions to course outlines in 2013 the DACSO survey results have shown significant improvements in student satisfaction between years 2013 to 2014.

Change In Student Satisfaction Levels

2013 DACSO Survey results	2014 DACSO Survey results
• writing skills ……20% • reading skills ……..40% • problem solving...……40% • critical analysis ……..40% • teamwork...……40% • independent learning …….40%	• verbal communications ……..57% • writing skills ……83% • reading skills ……..71% • problem solving ……100% • critical analysis ……..100% • teamwork ……...100% • independent learning ……...100%

Data retrieved from http://www2.B.C.stats.gov.B.C..ca/Dashboard/

Consistent results were reported in the student and alumni surveys sent out in 2015 as part of this self-study. For the following survey question, results among student and alumni are analyzed.

Question 17
How satisfied are you with your opportunities to develop the following essential skills in the CADD program?

Student survey results (very + somewhat satisfied)	Alumni survey results (very + somewhat satisfied)
Citizenship and global perspective……65% Intercultural skills ……..72% Visual literacy skills ……..79% Personal management skills..…….79% Writing skills..……83% Creative thinking/ problem solving skills…...80% Oral communication……..57% Math skills……..79% Technological skills……..85% Reading and information…….79%	Citizenship and global perspective……29% Intercultural skills ……..48% Visual literacy skills ……..72% Personal management skills..…….79% Writing skills..……54% Creative thinking/ problem solving skills…...70% Oral communication……..58% Math skills……..54% Technological skills……..82% Reading and information……..58%

Interpersonal, teamwork and leadership…..83%	Interpersonal, teamwork and leadership…...79%

While some areas seemed to report low percentages of satisfaction, conclusions are unable to be made as those areas reported high percentages of neutral responses. The two surveys between current students and alumni do indicate that improvements in the focused areas of skills development are being achieved. Inferences to the increases may be due to the recent changes to course outlines as well as increased relationship of curriculum to real life experiences of assignments.

Recent efforts to seek accreditation with ASTTB.C. have resulted in major structural changes to the Diploma in which sustainable design and project management were added as a strength to the entire program. As a result all course outlines now include sustainable design, project management and technical writing. Upon reflecting on the DACSO results, it would appear that these changes have contributed to the satisfaction of students experience as well as their skills development. For example, in outcomes such as writing skills DACSO survey results reported an increase of 63% satisfaction. By implementing increased research and writing skills relevant to industry and economic trends such as sustainable design, we believe students have become more engaged in their assignments as they see relevance to future employment.

e. Experiential Learning

Some courses in the Mechanical specialty contain outcomes that place the students in the Welding and/or Millwright shops to complete projects that were designed in the CADD classes. This experiential learning provides opportunity for CADD students to better appreciate the end use of their drawings. It gives them opportunity to work with the people who are using their drawings, and to observe obstacles in the building process that were not evident in the design stage.

Other informal opportunities for experiential learning are continually integrated into the CADD program as can be accommodated. (See Appendix R)

Formal
CADM 1210
Experiential learning is included in the CADM 1210 course under the outcome “students will complete projects in the Welding and Millwright shops”

Projects completed in the past include:

- Podium design and fabrication (seven podiums were made and they are housed at all campuses, two at Surrey campus, and are used for events such as convocation).
- Manual Brake Press design and fabrication
- Welding Shelves design and fabrication

- Picnic Table design and fabrication

Students designed and then built the relevant projects in order to experience the role of being the end user of the drawings. Students were able to see the readability of their drawings, as well as the practical application of their designs.

CADD 2110
Students perform several surveying exercises (field surveying) to understand how surveying data is collected, and how to interpret surveying field notes when creating drawings from the field notes.

Informal
With the use of the 3D printer and router that is part of the CADD program, students are able to physically build their designs to see the physical application of form and function.

Whenever possible, CADD students work with Trades students on an informal basis to design and layout plumbing and electrical drawings.

The CADD Department is often sought out by other Departments to create drawings for their areas. Students will often take these small jobs on as additional learning opportunities. These have included creating drawings for Skills Canada Competitions and projects for the Welding Department.

Schedules do not always allow this collaboration with the Trades programs, and instructor coverage can also be a challenge, but it is desirable to take advantage of these opportunities whenever possible.

f. Teaching and Learning Methodologies

Faculty members explore a variety of teaching methods that reflect the currency of class dynamics and learning styles within it. As each new term begins, instructors are tasked to assess their students' individual skill levels and previous experience. Each group of students has individual characteristics based on their background and experiences.

Assignments are regularly adjusted based on the collective skill level of each class. In addition, as technology becomes more accessible and individual computer skills increase the course pace and depth are continually adjusted, resulting in an ongoing process of review and adjustment to the course outlines.

Whatever assessment and/or teaching methodology the faculty member may adopt, visualization skills among students is one area that we are most concerned with. Students can learn to use the tools, but if they cannot visualize, then the connection between concept and product may be lost. Drawings are really just a set of meaningful instructions for someone else to work from, such as a welder, fabricator or construction worker. Due to this skill being one of importance, the CADD Technologies program regularly take advantage of any new tool that may encourage visualization skills among students. Such tools are real 3D models to use as references, in addition to our own 3D printer. The 3D printer allows students to design and draw and then create an actual model for inspection and confirmation.

Textbooks for software are revised as often as the software itself. The CADD Tech. program has adopted an online tutorial textbook to which students purchase access to at the beginning of their studies. This online textbook includes many software applications that are integrated into the

program curriculum during the two year Diploma courses, it is also automatically updated externally as new versions of software are released. We have found this to be very effective as students can review complex concepts on their own time and apply or practice immediately. Included in the site access are video tutorials that students can access from any computer with internet accessibilities. Therefore, if a student misses a concept during a lecture or requires enforcement of it, they can do so at their leisure with minimal disruption to their homework assignments.

In order to assist students with outside lab work (homework), the Moodle Learning Management System (LMS) has become a very effective instrument to give students access to resources and assignments. The majority of course curriculum is now housed in Moodle and used by most faculty members. Many instructors teach the same course, especially for CORE. In many cases Instructors collegially share their Moodle sites with other faculty members which updates and enriches the content for all involved. The Moodle sites have also proven to be helpful aids to new instructors in the program.

Some faculty have adopted the practice of digitally recording and uploading their lectures to the LMS. This practice enables students to focus on the lecture in the confidence that they can review the material later as they need.

For the past three years, the CADD Technologies program has been fortunate enough to obtain a peer tutor. The peer tutor is arranged through the Learning Center and coordinated with Instructors at the beginning of each term. The peer tutor assists students directly in the lab portion of their day and is selected from the second year Diploma students. While new students appreciate having assistance in the class from someone that has already experienced the same exercises and projects, we have found that this has also supported and strengthened the skills and knowledge of the tutor.

g. Assessment Methods

Course outlines prescribe that there will be 2 to 5 tests or quizzes (25%) and no final exam. There are 5-10 assignments (50%) and there is a final project in each course which is worth 20% of the final grade. 5% is participation which is based on student's contribution to lectures and activities during the semester.

Since CADD work in the industry is primarily project based, it has been determined that assessing complete projects is the most effective way for students to learn how to prepare a large amount of work and complete it by a specified deadline.

Drawings are assessed by the following factors:

- Completeness
- Accuracy
- Adherence to standards
- Presentation
- Meeting of deadlines

Final projects represent actual projects from design offices, such as a complete set of construction drawings for a house. Assessment is performed by comparing student work to a specified list of requirements and criteria, and to a specified standard of work.

As discussed previously, online textbooks for some software related courses are utilized. This online textbook offers testing after each section and is become an effective method to assess student's abilities on their own as well as used for in class quizzes.

h. Delivery Modes

Face to Face classes
The delivery mode for each course consists of a lecture, followed by lab time to apply the lesson from the lecture. This occurs 2 times per day, once per week for the length of the semester, for each section.

This delivery mode allows students to immediately apply the delivered lecture while in the presence of the instructor. This method has proven to be very effective in helping the students to retain new material and to get timely assistance when needed.

CORE and specialty courses are offered in the daytime. Each daytime course is scheduled one day per week. This allows students to focus entirely on one subject per day and provides them the opportunity to apply new concepts immediately.

Second year courses and CTC partnership courses are offered in the evening. They are scheduled either one day per week or twice per week to accommodate CTC and working student schedules.

Blended classes
Some second year courses and CTC courses are offered in a blended mode. The in class delivery mode for each course consists of a lecture, followed by lab time to apply the lesson from the lecture. This occurs once per week for the length of the semester. The online portion of the class is structured with a video lecture or reading assignment, followed by a lab off site for the length of the semester.

This delivery mode allows students to immediately apply the delivered lecture, either while in the presence of the instructor or off site. This method has proven to be very effective in helping the students to retain new material while following a flexible schedule. It also allows students to get assistance by seeing the instructor face to face once per week. The instructor will also answer emails within 24 hours to assist with questions that may occur during the online lessons.

When the program began to offer the 2nd year diploma courses (2011), the courses were scheduled in the evening in order to accommodate certificate graduates who had procured work in the CADD industry. This flexibility for students was increased even more by the addition of blended courses in 2012. This experience with partially online courses places the CADD program in a good position to offer more online training as the need arises.

i. Faculty Qualifications and Currency

KPU's CADD Technologies faculty is committed to teaching excellence. The diversity of faculty's qualifications, along with industry and teaching experiences, provide students with a range of expertise that includes professional and academic perspectives. Instructors in the CADD Technologies program are dedicated to the program's and the student's success. Several full time faculty members have dedicated over twenty years to the CADD Technologies program and KPU. We all feel very passionate about its success. As indicated in the student survey 81% said they feel their Instructors care about teaching and 17% were neutral on the subject. In addition to the years of teaching experience and areas of subject matter expertise, each faculty contributes to the program in their own way that compliments their respective experiences as documented in the Academic Unit on page 5.

Faculty members have work experience in industry in the fields of mechanical, structural, architectural, building construction, CAD management, and civil. These areas of discipline are all in the scope of current training and expectations of the CADD Technologies program. Many faculty

maintain their industry connections to keep the program relevant and to increase employment opportunities for students.

As found in the student surveys, 80% of students reported overall satisfaction with instructor's ability to demonstrate current connections with industry. 84% of students reported that instructor's connection with industry as being overall important in their education.

Educational backgrounds of faculty members are just as diverse as industry experience. This provides a collective skill set to meet many of the challenges the program faces as well as meeting students and institutional expectations. Faculty members have shown to continue their education and have embraced life learning opportunities that provide better insight into both curriculum and operational aspects of the program. As listed in the faculty bio's (Appendix W), recent educational endeavors have included PMBOK (project management), Chair's Academy, sustainable design, structural design and many others. These educational experiences have enabled faculty to embrace additional teaching assignments as well as undertaking additional program operational responsibilities such as Chair duties.

As noted earlier, keeping current with the technology in the CADD Technologies program is a challenge. One effective solution we have adopted to employ working professionals who are experts in the latest advanced CAD software. This provides a benefit to both students and other faculty towards applying current practices as used in industry. Given this industry focus, full time faculty members are better able to direct their professional development time towards areas that are in immediate consideration, thus being able to apply new or updated skills instantaneously.

One example of effective professional development that enables faculty members to keep on the "cutting edge", and is deemed suitable for all members is Autodesk University (AU). Consequently, faculty members take turns in attending this once a year, 3 day intensive conference/workshop event.

Many of the faculty members within the department are members of various internal and external organizations and committees. These include Faculty Council membership, senate standing membership, institutional working committees, technology (Moodle) workshop facilitators as well as external memberships associated with the CAD and/or drafting and design industry. These include Applied Science for Technicians and Technologists of B.C. (ASTTB.C.), Vancouver AutoCAD User Society (VAUS), and Autodesk User Group International (AUGI).

Many of the CADD Technologies faculty members have completed the Provincial Instructors Diploma Program and/or KPU's ISW. One of our instructor's has completed the Adult Education Diploma and a Master's Degree in Curriculum and Instruction. Frequent discussions surrounding new teaching methods and opportunities to assist students struggling with material are brought up during department meetings where everyone can offer up their perspective and experience. Although we don't discuss "best practices" in a formal way, it may be a fruitful recommendation going forward to maximize on the experience and education of the entire faculty.

4. Quality of Education Experience

a. Program completion and Student Success

Having multiple exits and credentials in the CADD Tech program, we have found that not all students apply for credentials they earn. Almost half of our eligible students are not applying for a credential. 42% of alumni reported that they did not apply for credentials they earned in the CADD Technologies program, and 10% were unsure if they applied for all the credentials they may have earned.

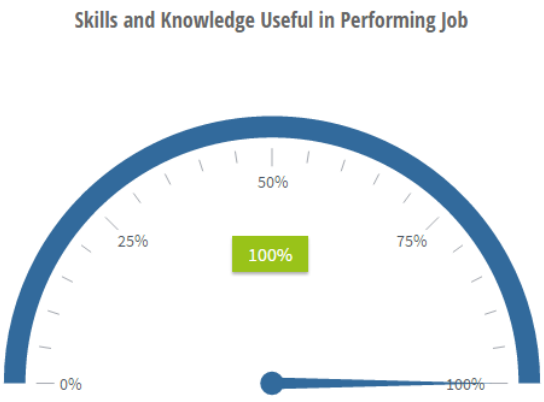
Since 2008, it was found through data retrieved from IA & P that 42% of CADD Technologies students that qualified for various credentials did not apply. Many students indicate that they do not want to apply for a citation or certificate(s) and they are waiting to apply for a Diploma. However, this becomes problematic in showing successful graduation numbers for all levels of achievement in the program and may not be an accurate observation of the success of our students and completion rates.

Fortunately, it was shown through the alumni survey that 74% of graduates are working in an industry related job based on their training. Therefore, we may speculate that employers are more interested in the actual training than the credential. It may also be assumed that students completing training may be under the impression that they do not need to apply for the credential.

b. Relevance of Education to Further Studies

As indicated in the program purpose, one of the primary goals is for students who graduate with a Certificate or Diploma pursue further studies. In the 2014 alumni survey, graduate reports indicated that 20% are pursuing further studies in a related field and 6% have already completed further studies in a related field. Given the current negotiations of KPU CADD Technologies Diploma graduates bridging into TRU's Building Sciences and B.C.IT's Construction Management Bachelor Degrees we expect these numbers to increase in the years to come. As also reported in the alumni survey, 58% of graduates indicated they would be interested in a degree program if their undergraduate credits could be applied and gain them access directly into the 3rd year of a 4 year degree program.

c. Relevance of Education to Employment



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In the 2014 alumni survey (Appendix A) it was found that 53% of CADD Technologies graduates are working in a related field. In the 2014 DACSO survey, 75% of graduates reported that their

education was very or somewhat useful in obtaining employment and 100% satisfaction with the skills and knowledge obtained are useful in performing their job.

In the 2014 Industry survey (Appendix A), it was reported that 59% of employers hired a KPU CADD Technologies graduate and 90% reported that they would hire a KPU CADD graduate in the future.
Hiring from KPU's CADD Technologies program was based on skill level, standards of excellence and previous experience.

> *"Knowing there is a minimum Cadd proficiency in all graduates."*
> *"Prior experience in the industry and referral KPU has the best drafting training in Vancouver."*
> *Industry survey comments*

70% of employers reported they were very and somewhat satisfied with the level of problem solving and critical thinking skills, 80% in writing and oral communication skills and 78% in ability to work independently and collaboratively as part of a team. These findings are an enlightening discovery as they are a reflection of the vision statement the department developed in 2011 and with KPU's mission and mandate.

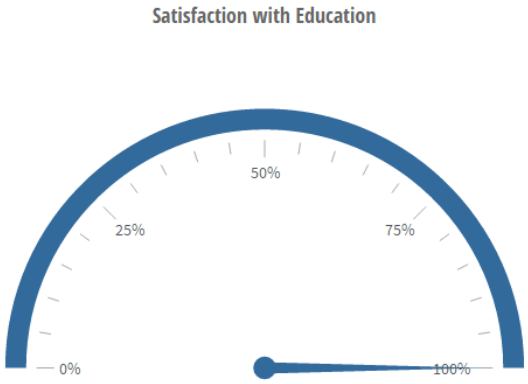
71% of students reported that they were overall satisfied with their ability to develop a comprehensive portfolio of work and 79% indicated that they were prepared for entry level industry positions.

d. Student Satisfaction with Education and Learning Experience

> *"The program does a very good job for preparing students for an office environment by encouraging communication between students, and providing assistance with reading design notes"*
> *CADD student survey comment*

According to the 2014 DACSO survey results, 86% of CADD Technologies graduates are employed in full time positions, and 100% reported satisfaction with education in 2014 and in 2013 60% reported satisfaction with education.

As stated in section 4.e it appears that the increased student satisfaction with their education is based on increased rigor and industry relevance. Faculty member's genuine sense of responsibility for student's success and their own continued professional development are some of the many ways that contribute to the students reporting 100% overall satisfaction.



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Faculty members create life-long connections with their students. 86% of students reported that they feel their Instructors respect them and 12% were neutral on the subject. The neutral responses are likely due to the number of students who had been in the program for only a short time as the survey was conducted early in the semester. CADD graduates often develop deep connections with the program that they in turn contribute back to the program in many ways. Many of our new graduates obtain employment as a result of previous graduates connecting with us to fulfill job opportunities. Many of our contract faculty and PAC members are alumni and many also return as guest speakers. We feel that these connections that graduates make with the program are not entirely due to the curriculum and their newly learned skills, but also to the people that deliver the curriculum and facilitate them in their learning experiences.

In addition to the student experience and interactions with instructors, only 4% reported they were dissatisfied with the instruction, while 80% felt the instruction they received was of high quality, and 15% reported neutral.

e. Student Satisfaction with Skill Development

Outcomes regarding industry specific skills were surveyed by both current students and alumni. After reviewing the results we have found low satisfaction in both effective communication and effectively working within team skills from the alumni group but high satisfaction among current students. It is likely that students working within the classroom are comfortable with their skills in these areas but find they are weak in those skills once working in industry. This may be due to entry level CADD graduates working with experienced designers and not feeling as comfortable as they do with their peers with the same knowledge. These two skills are extremely important to the overall success of CADD students and graduates and will require further investigation as to not overlook the feedback provided to us by our working graduates.

Current students were not overly satisfied with opportunities to develop their writing skills and interpreting and implementing design codes and standards. These topics are already a current focus of our attention for improvement.

Student survey results (very + somewhat satisfied)	
Researching, analyzing & interpreting data	77%
Discipline-specific writing skills	67%
Interpreting & implementing codes & standards	72%
Developing & producing drawings & models	82%
Understanding & applying design notes & criteria	80%
Conducting yourself professionally & ethically	85%
Communicating effectively	79%
Working effectively, collaboratively & productively as a member of a team	87%
Alumni survey results (very + somewhat satisfied)	
Researching, analyzing & interpreting data	75%
Discipline-specific writing skills	85%
Interpreting & implementing codes & standards	85%
Developing & producing drawings & models	70%
Understanding & applying design notes & criteria	79%
Conducting yourself professionally & ethically	70%
Communicating effectively	42%
Working effectively, collaboratively & productively as a member of a team	58%

Question 14. How satisfied are you with your opportunities to develop the following industry-specific skills in the CADD Program?

5. Student Satisfaction with Services, Resources and Facilities

Data reported in this section comes from a combination of sources. Current students surveyed January 2015 were asked to rate a variety of services available to them from the department and lab as well as from the Library. In addition to the current student class rating a variety of services and support, data retrieved from the 2013 Student Satisfaction report produced by IA & P. However, from the 2013 report only 16 CADD students responded out of the total 232 respondents.

a. Student satisfaction with Services, Resources and Facilities

Current students did not report favorably to the resources available to them from the Library. It was revealed that students did not find books and print material to be well supplied. The CADD Technologies department will follow up with further research on this to determine what resources students would like to see housed in the Library.

b. Administrative Services and Supports

Application process

65% of students reported that they were overall satisfied with the application and admissions process and 86% reported an overall satisfaction with timely notification of acceptance. As discussed in other areas of this report, improvements with the admissions process is a high priority for the CADD Technologies department. The first point of contact with the university is often during application and admissions and we would like to see this to become an easier process for both the students and admissions personnel.

A known issue surrounding enrollment is the lack of wait listing for applicants. Applicants who have applied for a particular term and that do not get offered a seat are then dropped. By the time they re-apply for the next term, that term is often full due to others applying ahead of them. Although we do have a written CADD application process in place, See Appendix L, which states that applicants will be informed of the lack of wait listing and be advised to apply for the next semester, the turn-over in admission staff has been so high that adhering to this procedure is inconsistent.

We have been informed by students that it has taken them several attempts of applying to the program before they got offered a seat due to the lack of an applicant wait list process.

Assignment of registration date and time in courses

Students and faculty are often frustrated because it has been observed that students who join the program later and have a lower GPA are getting earlier registration dates than senior students. As a result, faculty is not able to inform students as to how the date and time are assigned. Faculty need a better understanding of this process.

c. Learning Resources

As much as possible, instructors encourage students to utilize the on campus learning resources. However it has been observed that CADD students perform quite successfully without the assistance of external learning resources, which would indicate that the entrance requirements are adequate to meet the needs of the program.

Fortunately, the CADD Technologies program has a peer tutor during lab hours for students. This has proven to be quite effective since our software is unique to the program.

d. Support Services for Students

CADD students all utilize the educational advising service as they are required to complete an educational plan as part of a CORE assignment. Students reported an overall satisfaction in educational advising of 68%. This is likely due to the fact that students are overwhelmed by the complexities of post-secondary education and the many options available to them.

e. Specialized Equipment and Software

Feedback from current students show that 83% and over are overall satisfied with the technology/lab space, computers and software. However, comments did state that the network can be slow. Another comment showed that besides the CADD lab, there is nowhere else students can work on campus. In March 2014 an instructor had put in an IET request to have AutoCAD installed on Surrey Campus Library computers to allow more flexibility for students. Unfortunately, the request was not resolved until April 2015. We would like to see more flexibility for students to work off and on their home campus and will look into options.

> *"often wait for it while looking at a blank window…"*
> *Student survey comment*

6. Faculty and Staff satisfaction with Services, Resources and Facilities

a. Satisfaction with Professional Development

71% of department members reported to have participated in a KPU funded PD activity other than Autodesk University and 71% reported satisfaction with PD opportunities at KPU. 86% reported satisfaction with how PD funds are managed and distributed. Faculty indicated that the lack of accessibility is the biggest deterrent to participate. Few KPU PD activities are arranged on the Cloverdale campus, and when they are they conflict with the CADD Technologies program schedule. There appears to be a lack of communication between those who coordinate events and department members to ensure good attendance and that relevant topics are addressed. Many faculty members take it upon themselves to seek out learning opportunities that are important to them and many have remarked they are pleased to see the addition of Lynda.com as resource.

> *"Many scheduled PD activities conflict with teaching schedules. Would be nice if more opportunities at home campus…"*
> *"There are several opportunities available at KPU, but they do not always fit with my schedule… take advantage of the free www.lynda.com training now available at KPU."*
> *Faculty survey comments*

b. Satisfaction with Work Environment

The area of most concern in the work environment to faculty members is with the lecture room heating, lighting and cooling and lecture room furnishings. Lecture rooms are on the south facing wall of the campus and thermostats do not adjust adequately. Since the HVAC does not engage until the room is physically occupied the temperatures often reach the high 20's. This often leads to an unbearable condition to teach in and for students to learn in. Lighting is another concern as lectures are prominently prepared using computer and data projector. At times it is difficult for students to see the screen as too much light passes through the roll down blinds.

Faculty and staff within the program are often making requests to Facilities to have the rooms cleaned, as this is not performed consistently nor frequently. 86% of faculty have reported that they are not satisfied with the housekeeping on campus and often take it upon themselves to clean desk surfaces and sweep floors. Floors seem to be cleaned only once or twice per year and this results in a tremendous amount of dust which is not a healthy environment for people or computers.

c. Resources and support available to Program

With each new term and new group of students, faculty members will coordinate into one of the four CORE courses a library orientation. As part of the orientation, the library conducts an effective lesson on research and citation, as this is required in the first term. The new online APA citation guide located on the Library website is proving to be an excellent resource and we will increase its use in the near future.

The CADD Technologies program has also taken advantage of the expertise of Career Services to conduct a resume writing and interview workshop for the students. In the first term students create an E-portfolio and include their resume as one of the requirements.

As mentioned previously, the Learning Center employs one of the CADD Technologies second year students to work during lab time as a peer tutor. The tutor and hours of availability may

change each term, but we have found the resource to be both valuable to students, the tutor as well as faculty.

The department did not report positively regarding support from the Dean's office. As the Faculty of Trades and Technology is primarily trades, technology programs are often misunderstood. The needs of an academic program are different than that of a trades program. Scheduling, curriculum, and funding are three examples of differences to a trades program. A great deal of the Dean's office personnel are focused on issues related to the trades programs in our Faculty. We have found that unfamiliarity with undergraduate programs and related issues have resulted in many misunderstandings and misinterpretations that then affect our program.

This situation has been further exacerbated by the high turn-over in management at both the Dean's and Associate Dean's level.

> *"The Dean's office needs to continue to work at understanding our program and students, failure to do so makes us feel out of place in this campus."*
>
> *Instructor survey comment*

Another area of concern for the CADD Technologies department comes from support given by Admissions.

> *"More consistent support from Admissions… for example, we have had 3 different Admissions persons looking after our program in one year. It takes a lot of work for each person to get up to speed on the CADD Program…"*
>
> *Instructor survey comment*

Over the past eight years, the CADD Tech. program has worked closely with Admissions to ensure student access and enrollment is expedited. Unfortunately we find that each term there is high turn-over in admissions personnel resulting in issues due to the lack of familiarity and consistency with how our program works. Typically, the Department Chair spends unnecessary time dealing with admissions issues each term and working with them to find solutions that are only forgotten when new personnel take over.

Recently the current CADD Tech. Dept. Chair developed an Admissions Protocol document that could be used by admissions personnel as a guide (Appendix L). This document can then be shared with new comers to Admissions dealing with CADD. We have taken upon ourselves to ensure that new comers are provided with the Admissions Protocol document and that they understand it.

Many faculty members utilize the Early Alert system in place but have found that without feedback from the system there is no way of knowing whether or not students are receiving support.

The CADD Technologies Program employs a part time program assistant. The program assistant primarily maintains software upgrades, equipment, and supplies. Software is downloaded to both labs each term based on the needs of that term and new releases. In addition, the program assistant develops lab protocols for students. Lab protocols include first day computer login, printer setups, guest login accounts and setup for events such as Skills Canada. The program assistant also maintains registration and access for 4D CADLearning, the online text previously mentioned, for students.

Recent restrictions from the Dean's office placed upon all purchases regardless of magnitude is affecting the teaching/learning process by consuming valuable time to get approvals on standard office materials and program specific purchases. This creates frustration and stress as purchase of materials that facilitate learning outcomes have to be repeatedly justified. Examples of these are modeling materials, equipment, online subscriptions, specialized software and learning aids.

The majority of faculty feels satisfied with technical support as well as printing services on campus.

d. Specialized Equipment and Software

Faculty has expressed a high level of satisfaction with the existing lab equipment and software.

The CADD Technologies program takes every opportunity to embrace new technology when applicable to learning outcomes and industry requirements. Lab computers are replaced every 3 years as per the institutional roll out policy. The program has two dedicated labs, each with 20 student computer stations plus one instructor station. We schedule lectures in two classes which each contain a computer station and data projector. One support room between the two dedicated labs contains 3 computer stations, a plotter, printer, router and 3D printer. The computers in the support room support the equipment as listed above.

For most of the program's existence, with respect to computerization, the department maintained its own internal network with no support from IET. In 2014 we were provided with an opportunity to have IET maintain the network side of operations with the purchase of a new server. All software is still maintained by the program and installed by the program assistant.

The bulk of the software used in the CADD program is provided through a free educational license from Autodesk. Additional software used in the program, such as Photoshop, Tekla and Solidworks is purchased and maintained entirely by the department. Overall the software needs in the CADD program are adequately met and well maintained.

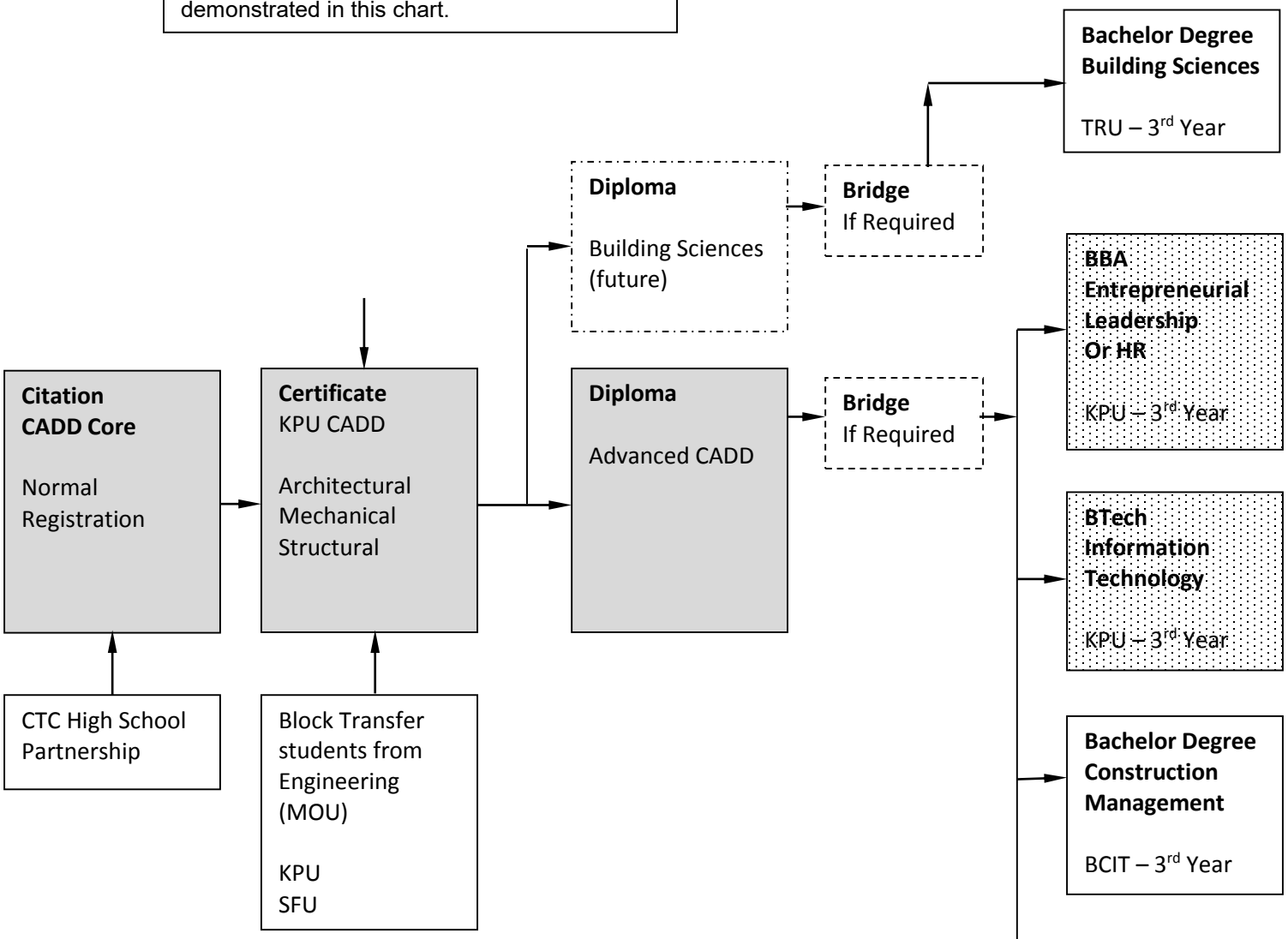
All lab computers and printers are networked along with a server computer to store support resources as well as archives. As a result, students are given the opportunity to make use of an internal network to retrieve resources and help with the understanding of how internal networks are used. This type of system setup is highly used in industry. Overall the printing needs in the CADD program are adequately met.

The 3D printer and router are new pieces of equipment for the program and the use of them is slowly being integrated into curriculum and course outlines, where appropriate. In addition, faculty members have made great use of the 3D printer to produce demonstration pieces of complex parts that students are tasked to draw. It is with these types of new technologies that transforms design concepts into reality. A few real projects collaborated with the Welding department have been successfully integrated into program curriculum.

7. Quality of Program Relationships and Connections

a. Articulation and Credential Recognition

As an undergraduate program, the CADD program benefits from many articulated relationships, internally and externally, as demonstrated in this chart.



KEY

KPU CADD Diploma Program

Connections

Obsolete

As of Sept. 2015, the Faculty of Business will no longer accept students to bridge into the 3rd year with 60 undergraduate credits. A process designed to meet current Business 3rd and 4th yr. course pre-requisites to re-establish this pathway is currently underway

The CADD Tech. program meets annually with the B.C. Drafting Technologies Articulation Committee (B.C.DTAC). Through the Transfer Innovations Project (B.C.CAT) block transfer agreements have been completed with B.C.IT, UFV, VCC and Camosun. Additionally we are negotiating a degree pathway with TRU. See appendices G, H and N.

b. Connection with Profession/Industry/Sector

Program Advisory Committee (PAC)

The KPU CADD program has an active PAC that meets two times per year. Approximately 75% of the PAC consists of KPU CADD or Drafting Alumni.

Graduate Employment

Many of the KPU CADD Certificate and Diploma graduates who are hired in the industry are hired by direct contact with KPU CADD Alumni, or past employers of CADD graduates who specifically request our graduates.

Many companies contact one of the CADD faculty members when they are seeking an entry level CADD person. Some companies have come in to make a presentation to the students when they wish to hire several graduates.

Strengthening Relationships

Alumni
Although the CADD program has a strong connection with industry through history, reputation and word of mouth, we are in the process of strengthening this awareness in industry by building strong ties with KPU CADD Alumni. (See Appendix K)

In December 2014 we held the first Annual Alumni Reunion, which was well attended by Alumni, PAC and current students. A dinner was provided, through funding from the Alumni Association and other sources, and guest speakers were brought in to discuss certification with ASTTB.C. and Sustainable Design.

This year the Alumni Reunion is scheduled for November 2015 and will feature guest speakers from other institutions who can provide a Bachelor Degree path for our Diploma graduates. This initiative is in alignment with the KPU Vision 2018:

> *Cultivate KPU's relationship with its alumni in order to celebrate their accomplishments, respond to their life – long educational needs, and support their role as KPU ambassadors in our communities.*

Co-op
Another desirable way to strengthen relationships with industry is to provide a Co-op element within the program. This feature was built into the CADD Diploma Program FPP. (See diagram below)

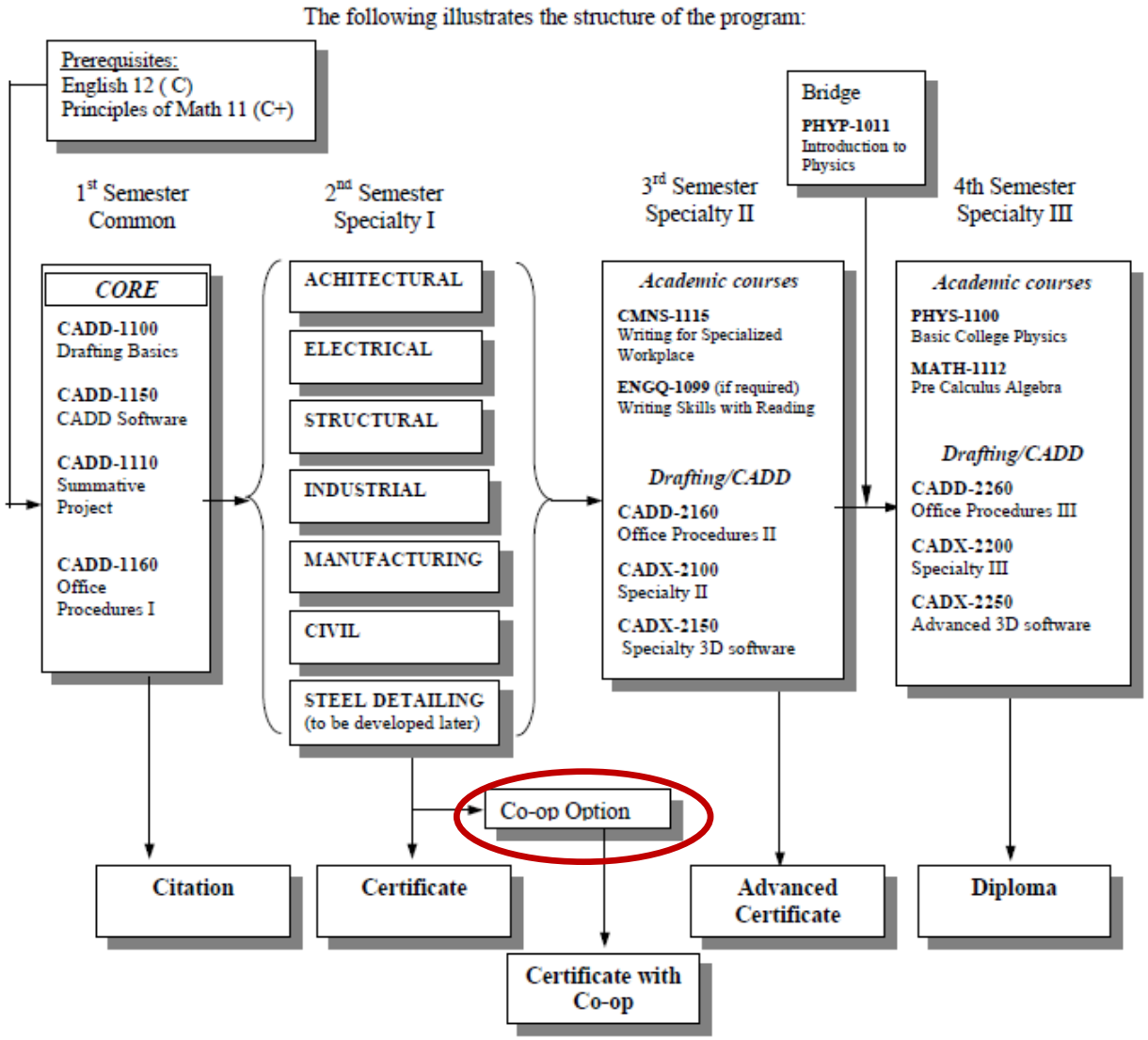
In 2011, much work was done by the CADD program, in conjunction with the Co-op Office to determine an industry need and consequently make a budget request to support a CADD Co-op option, but it was denied. (See Appendix T).

The CADD program strongly feels that this issue should be revisited. Industry needs and student feedback survey (see Appendix T) shows a strong indication that a Co-op option would be a

valuable opportunity for CADD graduates and industry. Further, a Co-op option is in alignment with the KPU Vision 2018:

> *"Support and coordinate opportunities for experiential learning, applied research, and community engagement."*

Excerpt from CADD Diploma FPP showing Co-op option



c. Public Information and Communication

Canvassing of new students indicates that most students learn about our program through the KPU website.

Some students learn about the KPU CADD program through the CTC High School Partnership, but only about 30% of those students continue past the Citation.

> *"It was exactly what I was looking for and they had a district partnership program that I got into for core that made it free and it contributed to my high school graduation" Student survey comment*

Other methods to create awareness of the KPU CADD program include:

- Open Houses at KPU Tech, Surrey campus, Richmond campus and High Schools
- Trade Shows
- CADD Website and Blog (www.kpucaddblog.ca)
- Skills Canada Regional at KPU Tech – CADD hosts two CADD events
- High School Drafting classroom visits
- Marketing efforts directly geared to High School Career Facilitators
- CADD Graduate Calendar (See Appendix D)
- Brochures
- Promotional material for Open Houses and Try a Trade events

With the exception of brochures and the KPU website, all public information and communication endeavors are accomplished by the efforts of CADD faculty and staff.

8. Conclusions and Recommendations

When conducting a critical reflection process on teaching, or in our case a whole program, we were guided by Stephen Brookfield who describes uncovering and challenging the assumptions in our practice as “hunting assumptions”. The goal is that we as teachers can begin to understand not only what and how we teach, but also most importantly why. Hunting assumptions by analyzing our practice is accomplished by viewing our practice through a variety of lenses. These lenses include our own self-experiential reflection, viewing our teaching through the eyes of our colleagues and students, and through the readings of relevant literature (Appendix X). As a result of this self-study process we were challenged to uncover strengths and weaknesses in our program through a variety of lenses and are now tasked to find ways to make improvements where ever possible. As found throughout this document a number of areas of concern were uncovered.

The process of conducting a self-study has been a difficult, arduous and invigorating experience. For many of us, it was really a walk down memory lane. It has shown us how far we have come in the past seven years as a new program, and 30 years before that. Seven years ago we embarked on a new program that none of us knew what the outcome would be. We have now found that our initial goal of developing a successful Diploma Undergraduate program has been realized. It has shown us that regardless of how we may at times lose focus on the bigger picture, the momentum we have created is in fact proving to be fruitful. Many of our current faculty members were part of that old self-paced, continual entry Vocational program and have been part of the total transformation of the new program. This document has provided us with a triumphant reward for the years of hard work, challenging hurdles, and daily grind. The following is a compilation of how our current concerns and conclusions have produced recommendations for the future.

Recommendations, Part 2 – History and Scope of Program

1. Investigate the opportunity of Co-op option
2. Investigate expansion opportunities at Richmond and 3 Civic Plaza
3. Investigate the viability of professional courses and continuing education
4. Investigate opportunities for foreign students
5. Investigate opportunities for aboriginal students

Recommendations, Part 3 – Quality of Educational Design

1. Formalize pathways for students not meeting entrance requirements
2. Increase integration of 3D printer and router
3. Increase experiential learning
4. Increase flexibility in the composition of credentials

Architectural Certificate	Mechanical Certificate	Structural Certificate
CADD Core plus		
16 credits in any combination of CADA courses	16 credits in any combination of CADI/CADM courses	16 credits in any combination of CADS courses

5. Increase content related to writing skills and the interpretation and application of standards and codes

Recommendations, Part 4 – Quality of Educational Experience

1. Increase program skill set by hiring SME's
2. Encourage students to apply for credentials and attend convocation
3. Encourage faculty to attend convocation
4. Increase field trips and guest speakers from industry

Recommendations, Part 5 – Students Satisfaction with Services, Resources and Facilities

1. Encourage students to utilize counselling, Learning Center and Library

Recommendations, Part 6 – Faculty and Staff Satisfaction with Services, Resources and Facilities

1. Understand how registration date and time works
2. Pursue increased involvement in new program applicant admissions process
3. Continue to develop and follow a strategic plan
4. Strengthen relationships with Dean's office and other Trades faculty

Recommendations, Part 7 – Quality of Program Relationships and Connections

1. Pursue accreditation with ASTTB.C.
2. Develop stronger alumni association
3. Increase Dean's office participation with PAC initiatives
    - The Program Advisory Committee (PAC) is composed of Industry Managers and Practitioners from various Design fields. Several are KPU CADD Dept. Alumni, some with 20+ years of Industry experience and holding Managerial positions.
4. Investigate the creation of a CADD User Society
5. Develop degree pathways for Diploma graduates

9. Response of Dean/Associate Dean

APPENDIX B Questions (section 9 of Program Review: Self Study)
CADD Program Review (Self Study)
Deans Questions

Thank you all for the considerable effort and due diligence that I have seen in this material. I'm sure it was a rewarding process, and will be the foundation for developing ongoing success and growth in the future. I am beginning my comments of the 'self-study' portion of this Program Review by starting at section 8. This is the area where the department created recommendations based on their reflection of the prior sections of the report. Following this I will address the questions as presented in Appendix B.

Section 8. Conclusions and Recommendations (Dean's comments)

8.2.1 I have discussed Co-op with the co-op department as this concept aligns with the Vision 2018 plan for experiential learning and I have found that the closer we link students to 'real life' the better chances they have to transition to a career. It also helps build our reputation in the community and will strengthen our industry connections.

8.2.2 I pitched having CADD at 3 civic plaza and there looks to be positive support from senior administration. I would not want to see the whole program leave however as CADD is a key part of the trades and technology campus. CADD designs what the trades "build" and CADD students benefit immensely by being able to see, touch, and experience the results of their work…putting theory to practice in this manner is experiential learning as well.

8.2.3 I am interested in non-base funded programs such as professional course. This was once done (AutoCAD) and I see it as fitting Vision 2018 as it builds our reputation in the community, draws industry to KPU, showcases 'what we got'. We have lots of former students who may be interested in this. If it is done nights and weekends, it could be offered at any campus or on site.

8.2.4 I have been in discussions with individuals connected to several universities in Malaysia and China. There is interest for 2 year programs. I would look at this as cohort only, non-base funded opportunities.

8.2.5 I have discussed this with VP of Education Dr. Ferreras. He floated the idea of mixed mode learning where we would go to the community (in some cases this could mean developing essential skills first) to deliver initial training in an engaging and interactive manner (like a hybrid flipped classroom) then support from a distance.

Comment: You may also want to consider training in prisons. This could be similar to 8.2.5 above

8.3.1 Pathways to success are critical. We need to analyze the impact of the 'new' admissions system and develop solutions. A pathway for these solutions may be in a new tri-partite committee supported by Dr. Ferreras and the Faculty association to review admissions process at KPU Tech.

8.3.2 There is interest in 3D printing, CAD router, CAD laser cutter technology by members of the Surrey Board of Trade Manufacturing Committee and others. I would suggest looking at laser cutting technology as it is much quicker than 3D, integrates into modeling for the trades, and showcases that we are technically current. It may also help bring in 'solutions based' research, where a company poses real questions (process, design, production, materials use…) and KPU Tech gets to solve them.

8.3.3 Experiential learning is highlighted in the Vision 2018 plan. I believe this can be dramatically increased by putting a focused effort into working with the trades that CADD designs for (which are all on campus). What would a diploma level elective look like that incorporates the 'hands on' part of the supply chain? Part one conceptualize, two-design, three-build it, four-redesign…..I see this as an iterative and rigorous process that would be very valuable in the work force. KPU grads who have not only designed, but also built… Co-operative learning and/or work experience can also be a valuable method of further developing experiential learning opportunities.

I also believe that building models and working in a related trade (like iron worker, metal fabricator) is a very relevant experiential application of learning.

8.3.4 Flexibility in credential composition may be valuable however I would caution against a 'smorgasbord' of options that dilute and cloud the path to completion. Post credential non-base funded programs may be a valid way to 'test the waters'. PAC advice on this is critical as you know. With only 43% of students (this document page 10) applying for credentials they are entitled for, would additional pathways further exacerbate this statistic?

8.3.5 It would be interesting to have the students take the ITA Essential skills Assessment as a base line, then again at the conclusion to measure growth and also provide a focus for self-development or learning assistance.

I have found that these skills can be developed by engaging students in the learning process. You may want to consider turning some lectures into student lead presentations. This way they students must internalize the interpretation of standards and codes in order to present them in a manner that others would understand.

8.4.1 Hiring SME's is a valid way to strengthen the currency of program delivery in relation to industry. Another method is for instructors to spend 2-3 weeks of their PD on job shadowing or volunteering their time in actual firms that employ CADD practitioners. This is particularly valuable for long term instructors, who may not have opportunity to immerse in the day to day aspect seldom experienced in conferences and at PAC meetings. But it can prove as valuable sources of information on what industry really needs for non-base funded training and development. Having discussed this with instructors (who after years away from industry tried this) reflect that it is humbling and uncomfortable as well as very rewarding and satisfying. After a couple years (2-3 weeks per year) it was only the latter and provided them and the student a richer experience in the classroom. I did not see evidence of this depth of industry exposure in this report.

8.4.2 I agree, the whole of the Faculty of Trades and Technology needs to do this and the Deans office needs to encourage this. I would like to see convocation swarming with our students….

8.4.3 I agree, the whole of the Faculty of Trades and Technology needs to do this and the Deans office needs to encourage this. I would like to see convocation swarming with our instructors….

8.4.4 Field trips and guest speakers are valuable. The department should look to the other departments in the Faculty and consider joint industry invitations. For instance, Lower Mainland Steel employs 10-20 CADD practitioners in Canada and even more in India. They work with steel, and design. The Masonry program has invited the CADD instructors into presentations that are expected to draw in over 50 architects and engineers. Welding had a national symposium of industry players discussing LNG. This was not only welding but also design. What others can we do in collaboration?

I believe that there needs to be an effort to publish to each other opportunities like this. Imagine the great questions a structural engineer would get from both CADD and trades students (welding, carpentry, steel fabrication, electrical, plumbing)…

8.5.1 I agree

8.6.1 Registration, admissions, and related processes need to be discussed and itemized by priority including proposed solutions or directions. There is a new admissions process that was launched this fall, I'm sure the University will have meetings to look at it in order to make improvements. This, like our teaching and learning is an iterative process (with dire consequences in some cases), let's be proactive and be ready with feedback.
Another process to look at this is the tri-partite committee I mentioned above.

8.6.2 This could well be a solution. Problems are needed to attach to this solution to validate it.

8.6.3 I agree, departments need plans. I am drafting a 'big picture' plan for the Faculty that will need your departments input and critique. The vision 2018 plan is a good guide for departmental development.

8.6.4 Agreed

8.7.1 Accreditation is probably valuable. I have heard at the National Counsel of Deans of Technology that many institutes are rethinking the value of accreditation. This is coming to light in the battle of the accreditors…You discuss this on p11 part 2.b. I would suggest that no matter the outcome or decision on accreditation with this program that you look to the National Technology Benchmarks for guidance and alignment.
I agree with the other comments in section 8.7

Appendix B Questions for Dean
Overall Program
1. The greatest accomplishments over the last 5 years are:
    a. Constant development of pathways to higher degrees (IE TRU)
    b. Solidifying multiple entry and exit points to the programs for external Post-Secondary's.
    c. Building MOODLE capacity (a key for consistency, growth, and instructor support)

d. Building alumni relationships
e. Maintain PAC value
f. Ongoing maintenance of the Bachelor of Technology in trades Innovation
g. Positioning the department for growth

These accomplishments have been acknowledged by maintenance of base funding for the programs, industry recognition of the significance of their contribution to the workforce, and students desire to take the programs (earlier this registration period there were 80 applicants for 20 seats)
They are using these successes to direct the development of the program by continuing to look for improvement and currency.

2 The greatest challenge over the next 5 years are:

a) Admissions and registration
   - I Dropping of students
   - II Pathways to access
   - III Not providing multi-semester registration for programs
   - IV Access to potential student contact information by department
   - V Accurate understanding of program

b) Succession planning
   - I The average age of the T and T faculty is oldest in the University
   - II Many long term faculty members
   - III Ability to hire industry professionals
   - IV Maintenance of program integrity as program grows and existing faculty retire

c) Program growth and quality assurance
   - I Maintaining program quality with program growth
   - II MOODLE development and maintenance (supports continuity and easier review)
   - III Professional Instructor training and development (IE: Provincial Instructors Diploma)
   - IV Instructor currency with industry (PD time opportunity)
   - V Adapting to evolving industry needs
   - VI strategic decisions on ‘how’ current to stay

These challenges, along with others identified in this report will require deliberation and planning at all levels. As the department is the front line, and most experienced, I believe that they need to lead the planning of how to work with challenges.

3. This program is an ideal candidate for growth and development.
   a. Expansion to Civic Plaza
   b. Non-base funded professional programs
   c. Elective programs (for trades, other semester programs…)
   d. Pathway to degrees (IE TRU)
   e. International CADD practitioners development

f. International student cohort programs

3.1 Resources to grow and expand are often in short supply. Methods of self-funding are critical.

a. Develop and grow non-base funded courses and build additional programs with retained earnings
    i. Industry specific
    ii. Application specific (Auto-Cad updates etc.)
    iii. International cohorts
    iv. Post completion specializations (metal detailing, CADD for ship building, trades, electives)
b. Industry support
c. Research and development funding

Institutional Considerations

4. The mission, goals, and values of the program are consistent with those of Vision 2018. This alignment contributes and supports many aspects of the future looking direction of KPU. In particular, the program is relevant, grows KPU's reputation, engages with industry, had valid growth potential and is poised to offer non-base funded courses. It also wants to further grow experiential learning through co-op opportunities. I suggest above (Deans reply to section 8) that growing ties with the KPU Tech trades and their industry is valuable for CADD students and faculty alike.

5. The greatest institutional supports lie (ironically) in the autonomy the department and program enjoy. This allows the members of the team to engage and work together to keep the program going. It allows their expertise to be used to grow and evolve the program without 'uninformed' oversight.

5.1 Additional support for the program may lie in MOODLE development. This allows for program quality assurance and delivery controls. The MOODLE programs should be built in small modules that can be easily used for non-base funded courses or packaged for 'discovery' programs. Having MOODLE packages may assist our high school partners as well.

Other ongoing institutional supports lie in technology. This can range from CAD Laser cutters to bigger monitors and more spaces for students to work (on their own at all the campus libraries for instance)

Removing perceived barriers that have been identified in the admissions process. It would be interesting to have reports on use of accountable time, PD time, and Curriculum development time to see how these avenues of support are being utilized.

External connections and Support

6. The program instructors work to ensure relevance by:
    a. Conduct PAC meetings
    b. Very active in provincial articulation
    c. Engage and seek accreditation with external professional bodies
    d. Engage with the other providers of CADD and drafting programs

e. Work to provide pathways to higher credentials (TRU for instance)

7. The Program Advisory Committee acts as a guide, sounding board, and supplier of employment opportunities for our students. Looking back several years to 2005-2006 I find evidence that the program employed the PAC extensively. The DACUM developed for this program was critiqued and validated by a PAC; separate PAC's for each of the 7 drafting/CADD disciplines was used to assure that very specific expertise was captured. This was through use of the DACUM process to determine outcomes.

   As the program has evolved over time I suspect that PAC input would have been incorporated in the decision process. Having said this, I found no evidence in this report on the activities of the PAC. It says in a couple places that PAC members are mostly our former students (Is this out of convenience or are these individuals decision makers and leaders in their areas?) I do not see evidence of whether the PAC represents the disciplines covered in this program or examples of the value they are providing.

8. Ways to enhance connections to industry are:
   a. Provide Co-op opportunities
   b. Provide work experience opportunities
   c. Offer non-base funded professional courses
   d. Ask the PAC's what they want
   e. Further develop high school connections and include industry
   f. Build technology collaboration with Surrey Manufacturing community (I have spoken to some and they say that we may be able to access and use very expensive technology off peak time…Like 3D printers, laser cutters, other….)

Role of Dean/Associate Dean

9. At this juncture my main strategy is to not get in their way. They are a determined group and have been successfully evolving the program over time. The associate Dean and I will work to provide support as identified by them. Commentary at the beginning of this response outline strategic direction and will no doubt serve as a starting point for further discussion.

   This review will allow the instructors to know the situation of their individual courses and should be a guide to assure they align with the stated goals and outcomes of the program. I expect that all departments focus on developing and growing MOODLE capacity. These points will help in making 'quick' non-base funded courses for industry and others. They will also allow for standardized program delivery and higher certainty of quality assurance as the program numbers grow and spread to other campuses.

10. The most significant successes as I have experienced as Dean in relation to this program are personal in nature. In high school one of my passionate career paths was drafting. I never ended up going that way, but it is very interesting to me and to have the latest and technology and a busy program supported by quality instructors is very satisfying. From a program standpoint I strongly supported and advocated for

CADD to have a strong presence at Surrey Central. This looks like it will become a reality. It offers exposure for regular programming, international programming and non-base funded programs.

The most significant challenges as Dean in relation to this program is determining an approach that will help the CADD department see the value they provide and receive if they engage and work as colleagues with the Trades part of the Faculty. I see both the trades and this program as part of the same value chain. If either are removed there is no 'project'. CADD students can gain valuable experience and knowledge by 'doing' some of the work they create, trades students can benefit to the same level by getting hands on CADD experience.

If we can harness the creative energy of all parts of the Faculty we will be a very strong force in the University and community.

11. The admissions concerns seem to be at the top of mind for many, which is a distraction for instructors, chairs, and others. My role as Dean may be strengthened by having dedicated admissions in our campus. This is like the Apprentice admissions that is housed in the Deans office. It allows personal, quick and direct assistance and input if concerns arise.
Final Comments

12. There can be many commendations for this program, depending on the 'lens' applied. What jumps out is the value that multiple entry and exit points provides and the pathways and connections to other institutes. This group has put considerable thought and effort into creating a program that can help students from many other post-secondary's *reach the next level*.

    Although there is a very low uptake on students applying for deserved credentials, there is a high employment rate. It may be that 'the piece of paper' is not as valuable as the fact that the student took their training at KPU. This is commendable.
    Finally the tenacity to push forward is a commendable trait that is strong with this faculty and program. They have a strong student focus, are constantly seeking new opportunities and don't give up if there are obstacles in their way.

13. It is important to add that if there was space and instructors, additional specializations could be added. This may support other faculties in electives, or even other institutions. They have a sound structure and I believe that they can grow. The growth may be in non-based funded offerings or in research and development or even in industry collaborations. The test will be when they are given the opportunity to grow, I believe they have the capacity and ability to be successful.

14. Short range recommendations are:
    a. Further develop MOODLE capacity
    b. Develop needed courses to create transfer pathway to TRU
    c. Look to identify weaknesses in technology that could impact running remote training.
    d. Develop posters for schools and career fares depicting the multitude of pathways through the program.

Mid-term recommendations are:

a. Continue developing MOODLE capacity
b. Develop systems to maintain quality and accountability for remote training delivery
c. Develop and start to implement succession planning

Long-term recommendations are:

Long term in this review is over two years. In that time we will be at 2018, and a new strategic plan will most likely be in place. Review program, faculty, consult industry and students then adjust as required.

My comments at the beginning of the Deans response provide insight into direction and improvement suggestions.

Completed by Brian Haugen, Dean of Trades and Technology on September 12, 2015

Appendices for Self-Study Report

Provided in separate document.

Appendices

A Program Review Surveys

- Alumni
- Current Students
- Industry
- CADD Faculty

B CADD Full Program Proposal (FPP)

C CADD Program Revisions

D Marketing: Working Grads – 2014 Calendar

E High School Partnership – Career Technical Consortium (CTC)

F Drafting 11 and 12 Qualifying Assessment (QA)

G BCCAT Articulation: Block Transfer Agreements & KPU Course Mapping

H BCCAT – CADD Transfer innovations Project

I CADD Memorandum of Understanding (MOU) with SFU Mechatronics Engineering

J CADD Memorandum of Understanding (MOU) with KPU Engineering

K Alumni Reunion – Funding Reports

L CADD Admissions Procedures

M CADD Strategic Plans

N CADD Memorandum of Understanding (MOU) with TRU Building Sciences Degree

O Accreditation: Applied Science Technologists and Technicians of BC (ASTTBC)
CADD Program - National Bench Marks

P CADD Aboriginal Technology (Proposal)

Q Full Program Proposal (FPP) - Bachelor of Technology in Trades Innovation

R Experiential Learning

S Professional CADD Courses (PCAD)

T CADD Coop – Application for Funding

U Proposal for CADD Diploma in Business

V Proposal for Math Substitution in CADD Diploma

W Faculty Bios

X Paper by Christina Heinrick: In Transition: An exploration of a Vocational Drafting Program's progression to an Academic Model

Y CADD Technologies Course descriptions

Z Media Release Forms for Interviews

AA CADD Program Advisory Committee (PAC) Directory

APPENDIX A

Surveys for Program Review

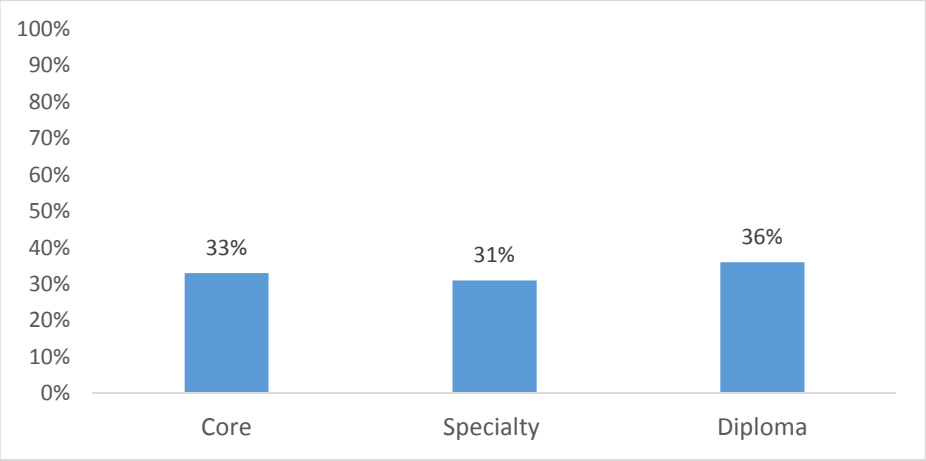
- Current Students
- Alumni
- Industry
- Faculty

Computer Aided Design and Technologies (CADD)
Program Review (2015)

Survey – Current Students

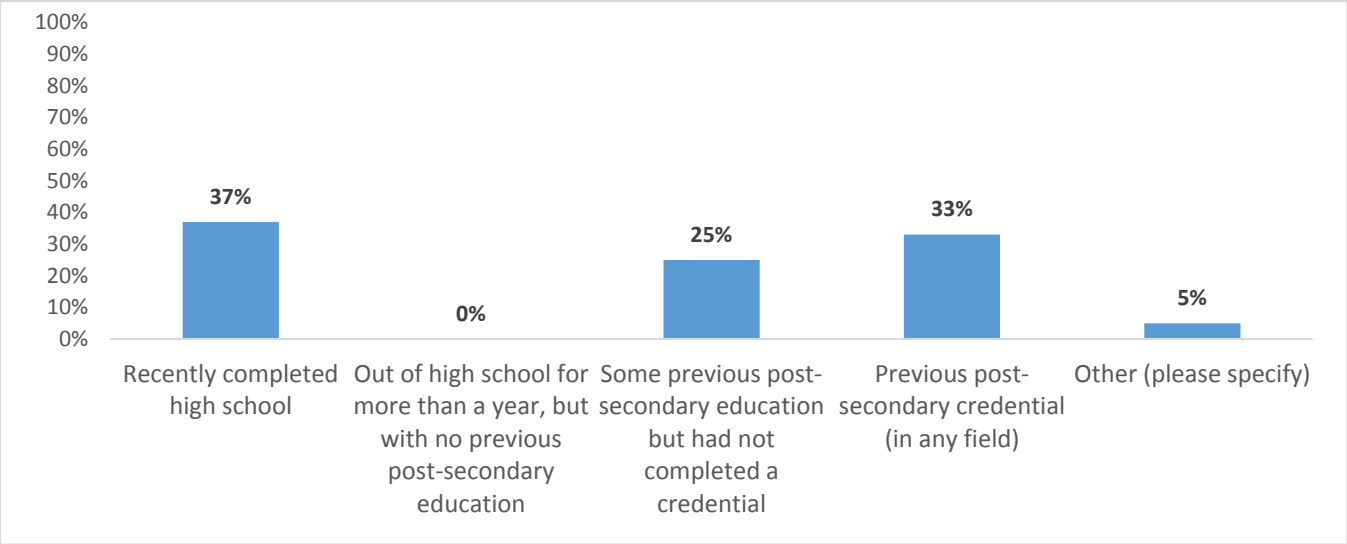
Conducted January 2015

1. In which level of the CADD program are you currently registered?	Frequency	Valid Percent
Core	14	33%
Specialty	13	31%
Diploma	15	36%
Total	42	100
Missing	2	
Total	44	

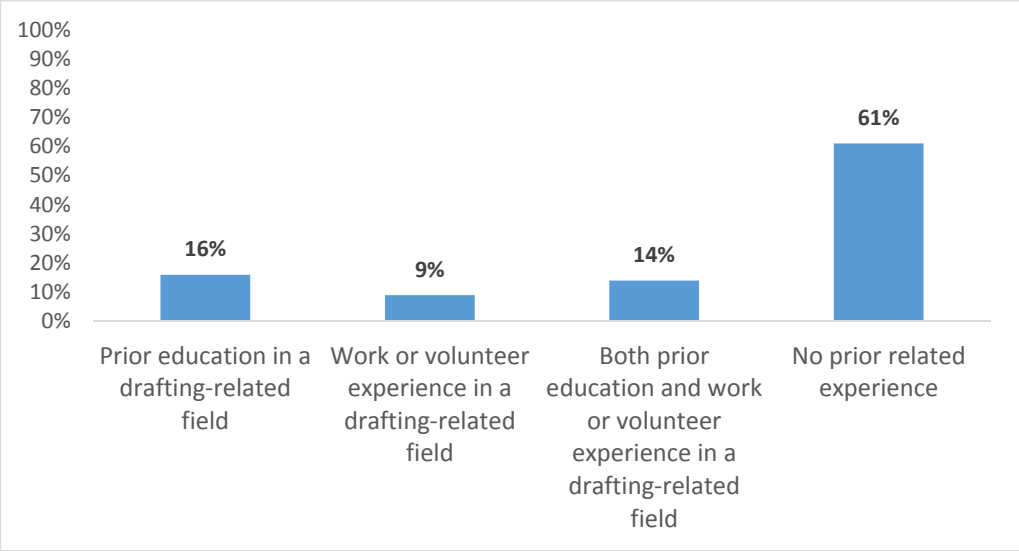


2. What best describes your educational background when you applied to the CADD program at KPU?	Frequency	Valid Percent
Recently completed high school	16	37%
Out of high school for more than a year, but with no previous post-secondary education	0	0%
Some previous post-secondary education but had not completed a credential	11	25%
Previous post-secondary credential (in any field)	14	33%
Other (please specify)	2	5%
Total	43	1
Missing	1	
Total	44	

2. If you selected other, please specify:
drafting 11

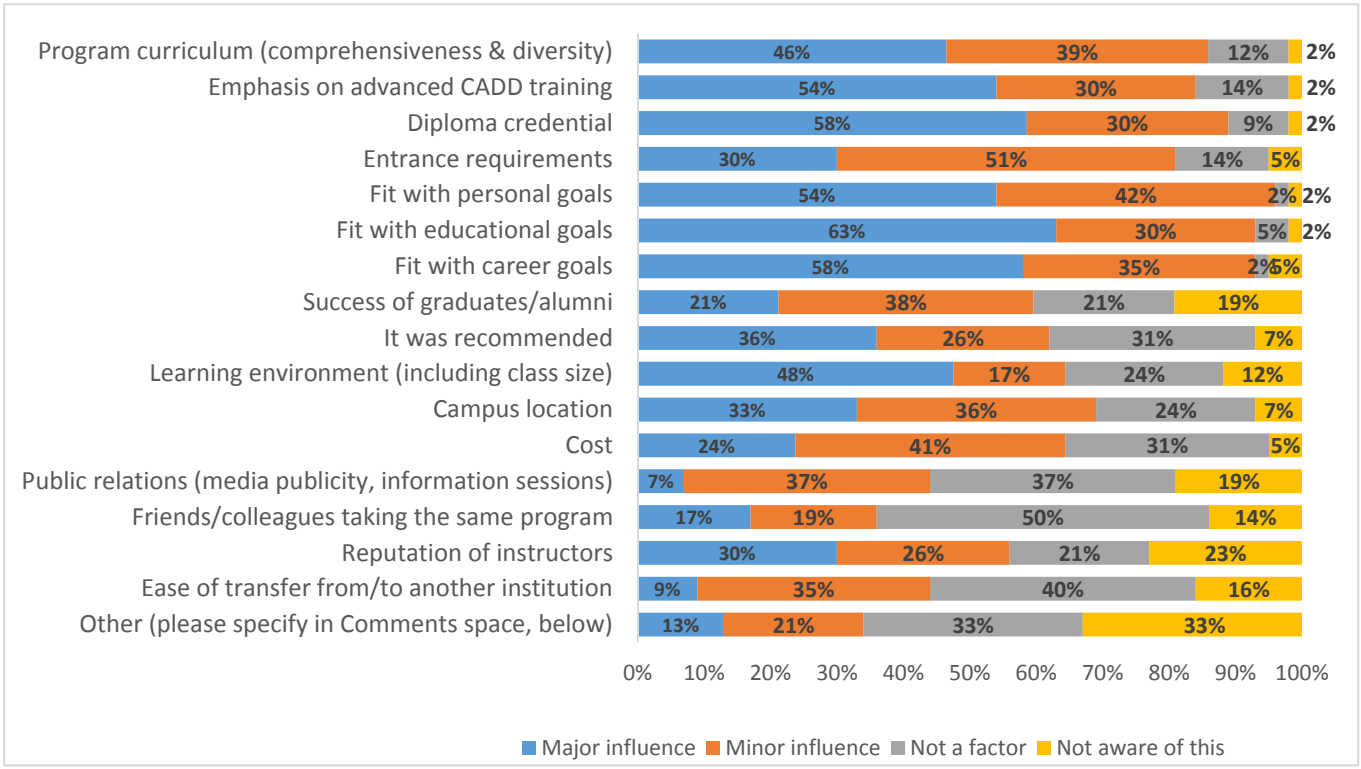


3. What prior experience in a drafting-related field did you have when you applied to the CADD program? For example: residential or commercial construction, trades work, etc.	Frequency	Valid Percent
Prior education in a drafting-related field	7	16%
Work or volunteer experience in a drafting-related field	4	9%
Both prior education and work or volunteer experience in a drafting-related field	6	14%
No prior related experience	26	61%
Total	43	1
Missing	1	
Total	44	



	Frequency			
4. To what extent did each of the following influence you to choose KPU for your CADD education?	Major influence	Minor influence	Not a factor	Not aware of this
Program curriculum (comprehensiveness & diversity)	19	16	5	1
Emphasis on advanced CADD training	23	13	6	1
Diploma credential	25	13	4	1
Entrance requirements	13	22	6	2
Fit with personal goals	23	18	1	1
Fit with educational goals	27	13	2	1
Fit with career goals	25	15	1	2
Success of graduates/alumni	9	16	9	8
It was recommended	15	11	13	3
Learning environment (including class size)	20	7	10	5
Campus location	14	15	10	3
Cost	10	17	13	2
Public relations (media publicity, information sessions)	3	16	16	8
Friends/colleagues taking the same program	7	8	21	6
Reputation of instructors	13	11	9	10
Ease of transfer from/to another institution	4	15	17	7
Other (please specify in Comments space, below)	3	5	8	8

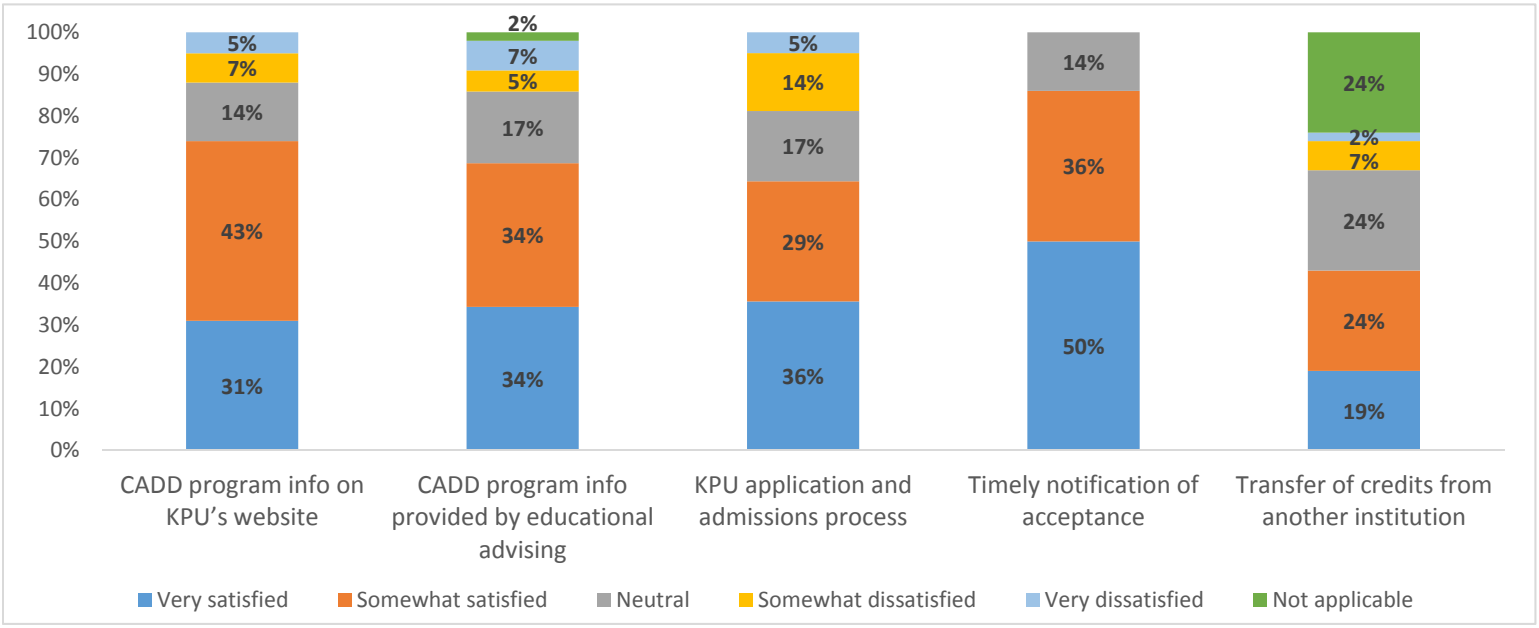
4. Comment Text
it was exactly what i was looking for and they had a district partnership program that i got into for core that made it free and it contributed to my high school graduation


Program curriculum (comprehensiveness & diversity)
46%
39%
12%
2%
Emphasis on advanced CADD training
54%
30%
14%
2%
Diploma credential
58%
30%
9%
2%
Entrance requirements
30%
51%
14%
5%
Fit with personal goals
54%
42%
2%
2%
Fit with educational goals
63%
30%
5%
2%
Fit with career goals
58%
35%
2%
5%
Success of graduates/alumni
21%
38%
21%
19%
It was recommended
36%
26%
31%
7%
Learning environment (including class size)
48%
17%
24%
12%
Campus location
33%
36%
24%
7%
Cost
24%
41%
31%
5%
Public relations (media publicity, information sessions)
7%
37%
37%
19%
Friends/colleagues taking the same program
17%
19%
50%
14%
Reputation of instructors
30%
26%
21%
23%
Ease of transfer from/to another institution
9%
35%
40%
16%
Other (please specify in Comments space, below)
13%
21%
33%
33%
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Major influence
Minor influence
Not a factor
Not aware of this

5. How satisfied have you been with each of the following:	Frequency					
	Very satisfied	Somewhat satisfied	Neutral	Somewhat dissatisfied	Very dissatisfied	Not applicable
CADD program info on KPU's website	13	18	6	3	2	0
CADD program info provided by educational advising	14	14	7	2	3	1
KPU application and admissions process	15	12	7	6	2	0
Timely notification of acceptance	21	15	6	0	0	0
Transfer of credits from another institution	8	10	10	3	1	10

5. How satisfied have you been with each of the following:	Per cent*					
	Very satisfied	Somewhat satisfied	Neutral	Somewhat dissatisfied	Very dissatisfied	Not applicable
CADD program info on KPU's website	31%	43%	14%	7%	5%	
CADD program info provided by educational advising	34%	34%	17%	5%	7%	2%
KPU application and admissions process	36%	29%	17%	14%	5%	
Timely notification of acceptance	50%	36%	14%			
Transfer of credits from another institution	19%	24%	24%	7%	2%	24%

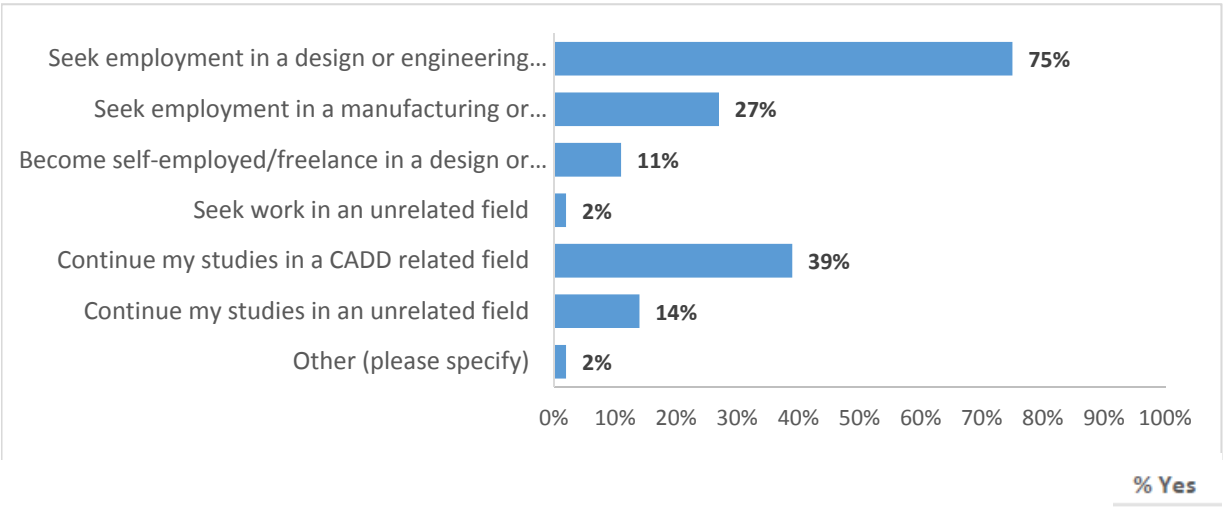
*Note: due to rounding, some totals will not equal 100%.



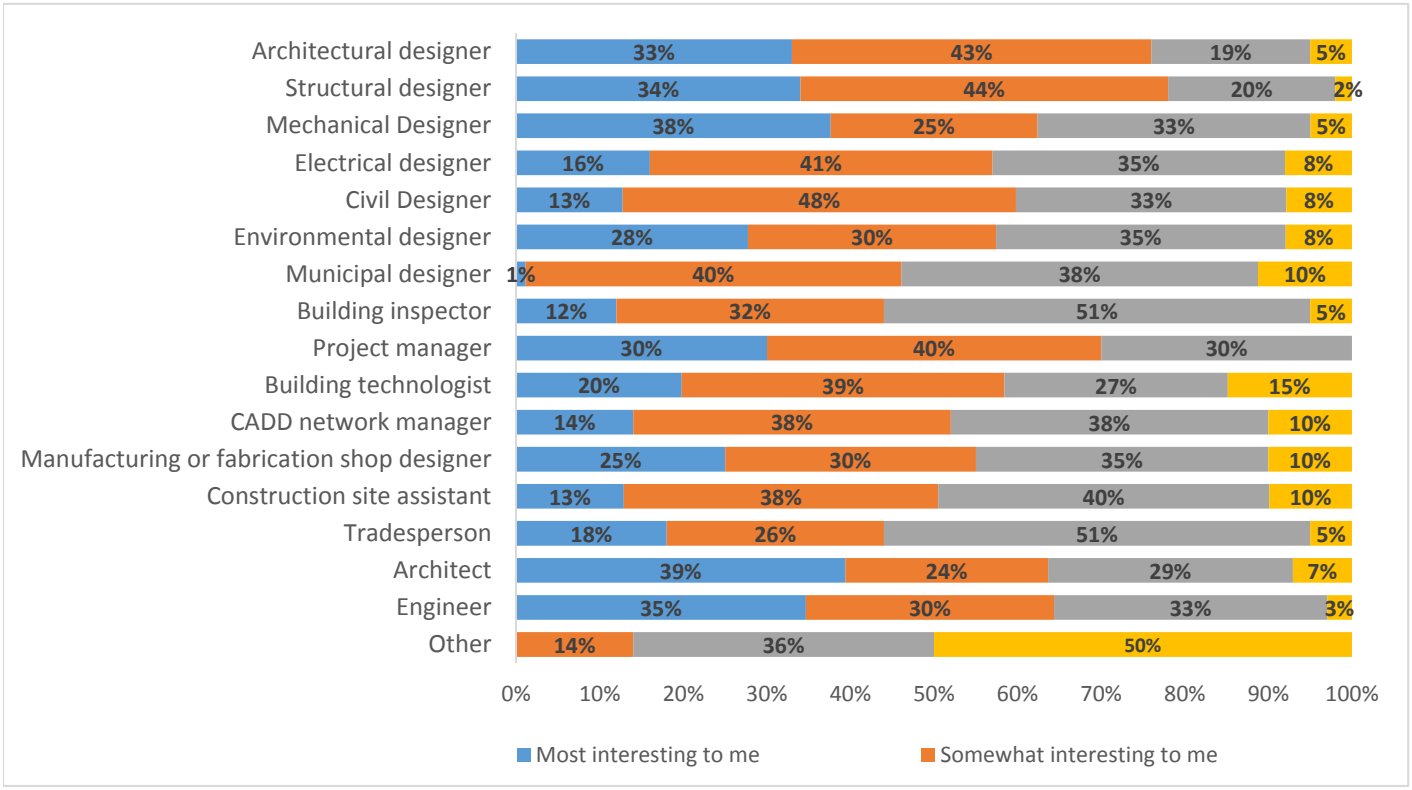
	Frequency	
6. What do you plan to do once you finish your CADD program? Please choose all that apply:	**Yes**	**No**
Seek employment in a design or engineering related position	33	11
Seek employment in a manufacturing or construction related position	12	32
Become self-employed/freelance in a design or engineering related position	5	39
Seek work in an unrelated field	1	43
Continue my studies in a CADD related field	17	27
Continue my studies in an unrelated field	6	38
Other (please specify)	1	43

	Per cent	
6. What do you plan to do once you finish your CADD program? Please choose all that apply:	**Yes**	**No**
Seek employment in a design or engineering related position	75%	25%
Seek employment in a manufacturing or construction related position	27%	73%
Become self-employed/freelance in a design or engineering related position	11%	89%
Seek work in an unrelated field	2%	98%
Continue my studies in a CADD related field	39%	61%
Continue my studies in an unrelated field	14%	86%
Other (please specify)	2%	98%

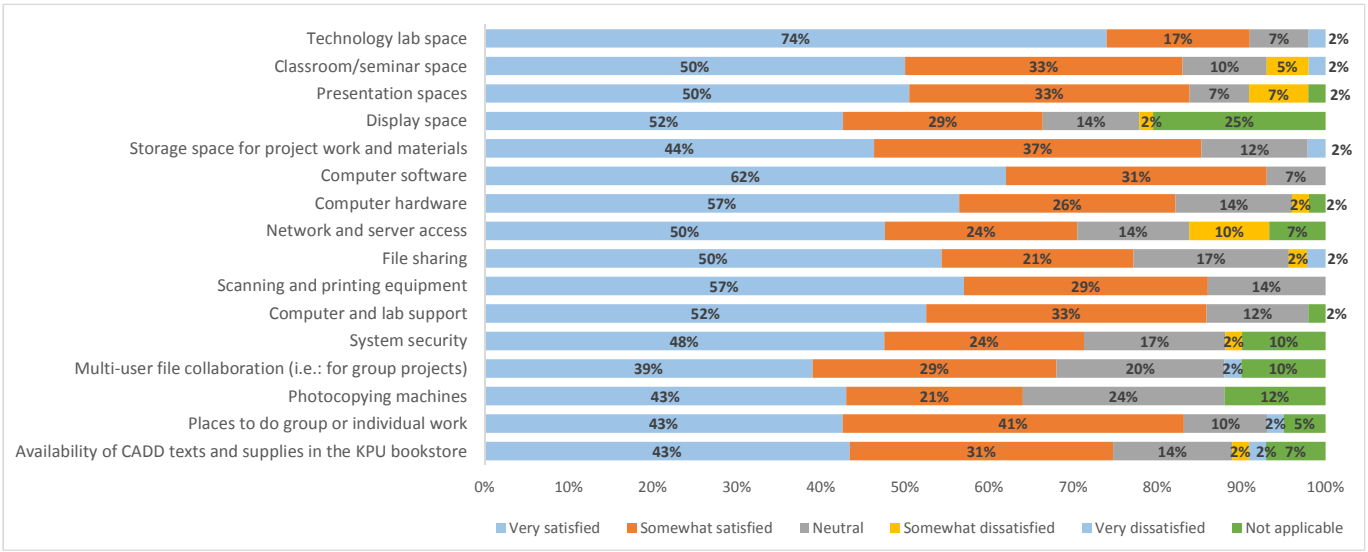
6. If you selected other, please specify:
No comments.



	Frequency			
7. Which particular job descriptions best fit your career interests?	Most interesting to me	Somewhat interesting to me	Least interesting to me	Not familiar with this job
Architectural designer	14	18	8	2
Structural designer	14	18	8	1
Mechanical Designer	15	10	13	2
Electrical designer	6	15	13	3
Civil Designer	5	19	13	3
Environmental designer	11	12	14	3
Municipal designer	5	16	15	4
Building inspector	5	13	21	2
Project manager	12	16	12	0
Building technologist	8	16	11	6
CADD network manager	6	16	16	4
Manufacturing or fabrication shop designer	10	12	14	4
Construction site assistant	5	15	16	4
Tradesperson	7	10	20	2
Architect	16	10	12	3
Engineer	14	12	13	1
Other	0	3	8	11


Architectural designer
33%
43%
19%
5%
Structural designer
34%
44%
20%
2%
Mechanical Designer
38%
25%
33%
5%
Electrical designer
16%
41%
35%
8%
Civil Designer
13%
48%
33%
8%
Environmental designer
28%
30%
35%
8%
Municipal designer
1%
40%
38%
10%
Building inspector
12%
32%
51%
5%
Project manager
30%
40%
30%
Building technologist
20%
39%
27%
15%
CADD network manager
14%
38%
38%
10%
Manufacturing or fabrication shop designer
25%
30%
35%
10%
Construction site assistant
13%
38%
40%
10%
Tradesperson
18%
26%
51%
5%
Architect
39%
24%
29%
7%
Engineer
35%
30%
33%
3%
Other
14%
36%
50%
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Most interesting to me
Somewhat interesting to me

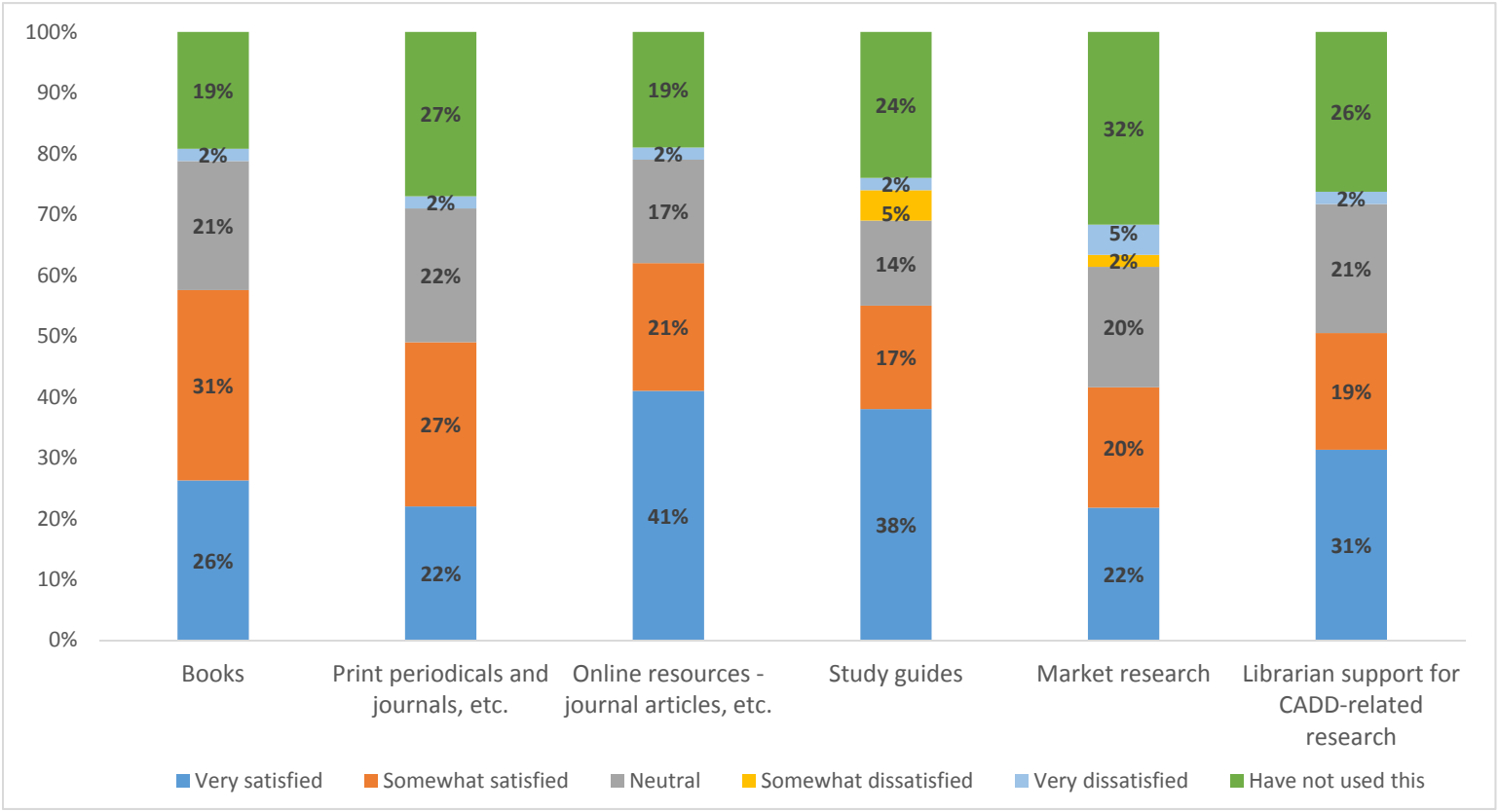
	Frequency					
8. Please indicate your level of satisfaction with the following resources as they apply to the specific needs of CADD students:	Very satisfied	Somewhat satisfied	Neutral	Somewhat dissatisfied	Very dissatisfied	Not applicable
Technology lab space	31	7	3	0	1	0
Classroom/seminar space	21	14	4	2	1	0
Presentation spaces	21	14	3	3	0	1
Display space	22	12	6	1	0	1
Storage space for project work and materials	18	15	5	0	1	2
Computer software	26	13	3	0	0	0
Computer hardware	24	11	6	1	0	0
Network and server access	21	10	6	4	0	1
File sharing	21	9	7	1	1	3
Scanning and printing equipment	24	12	6	0	0	0
Computer and lab support	22	14	5	0	0	1
System security	20	10	7	1	0	4
Multi-user file collaboration (i.e.: for group projects)	16	12	8	0	1	4
Photocopying machines	18	9	10	0	0	5
Places to do group or individual work	18	17	4	0	1	2
Availability of CADD texts and supplies in the KPU bookstore	18	13	6	1	1	3


Technology lab space
Classroom/seminar space
Presentation spaces
Display space
Storage space for project work and materials
Computer software
Computer hardware
Network and server access
File sharing
Scanning and printing equipment
Computer and lab support
System security
Multi-user file collaboration (i.e.: for group projects)
Photocopying machines
Places to do group or individual work
Availability of CADD texts and supplies in the KPU bookstore
74% 17% 7% 2%
50% 33% 10% 5% 2%
50% 33% 7% 7% 2%
52% 29% 14% 2% 25%
44% 37% 12% 2%
62% 31% 7%
57% 26% 14% 2% 2%
50% 24% 14% 10% 7%
50% 21% 17% 2% 2%
57% 29% 14%
52% 33% 12% 2%
48% 24% 17% 2% 10%
39% 29% 20% 2% 10%
43% 21% 24% 12%
43% 41% 10% 2% 5%
43% 31% 14% 2% 2% 7%
0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%
Very satisfied
Somewhat satisfied
Neutral
Somewhat dissatisfied
Very dissatisfied
Not applicable

9. Please indicate your level of satisfaction with the following Library resources, thinking of those specifically relating to CADD:	Frequency					
	Very satisfied	Somewhat satisfied	Neutral	Somewhat dissatisfied	Very dissatisfied	Have not used this
Books	11	13	9	0	1	8
Print periodicals and journals, etc.	9	11	9	0	1	11
Online resources - journal articles, etc.	17	9	7	0	1	8
Study guides	16	7	6	2	1	10
Market research	9	8	8	1	2	13
Librarian support for CADD-related research	13	8	9	0	1	11

9. Please indicate your level of satisfaction with the following Library resources, thinking of those specifically relating to CADD:	Per cent*					
	Very satisfied	Somewhat satisfied	Neutral	Somewhat dissatisfied	Very dissatisfied	Have not used this
Books	26%	31%	21%		2%	19%
Print periodicals and journals, etc.	22%	27%	22%		2%	27%
Online resources - journal articles, etc.	41%	21%	17%		2%	19%
Study guides	38%	17%	14%	5%	2%	24%
Market research	22%	20%	20%	2%	5%	32%
Librarian support for CADD-related research	31%	19%	21%		2%	26%

*Note: due to rounding, some totals will not equal 100%.

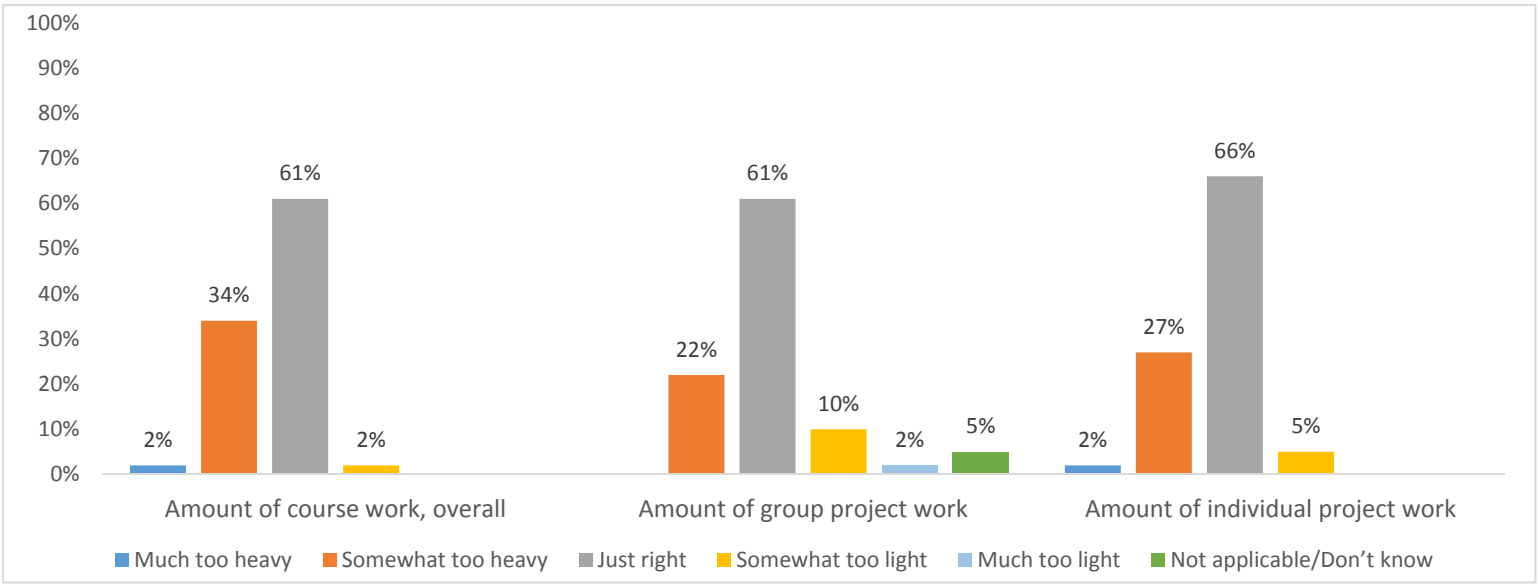


10. Any further comments on program resources?
Hope the internet speed can go faster! We often wait for it while looking a blank window...
Good job on providing what's best. Keep it up!

11. In your opinion, is the workload for these aspects of the CADD program…	Frequency					
	Much too heavy	Somewhat too heavy	Just right	Somewhat too light	Much too light	Not applicable/ Don't know
Amount of course work, overall	1	14	25	1	0	0
Amount of group project work	0	9	25	4	1	2
Amount of individual project work	1	11	27	2	0	0

11. In your opinion, is the workload for these aspects of the CADD program…	Per cent*					
	Much too heavy	Somewhat too heavy	Just right	Somewhat too light	Much too light	Not applicable/ Don't know
Amount of course work, overall	2%	34%	61%	2%		
Amount of group project work		22%	61%	10%	2%	5%
Amount of individual project work	2%	27%	66%	5%		

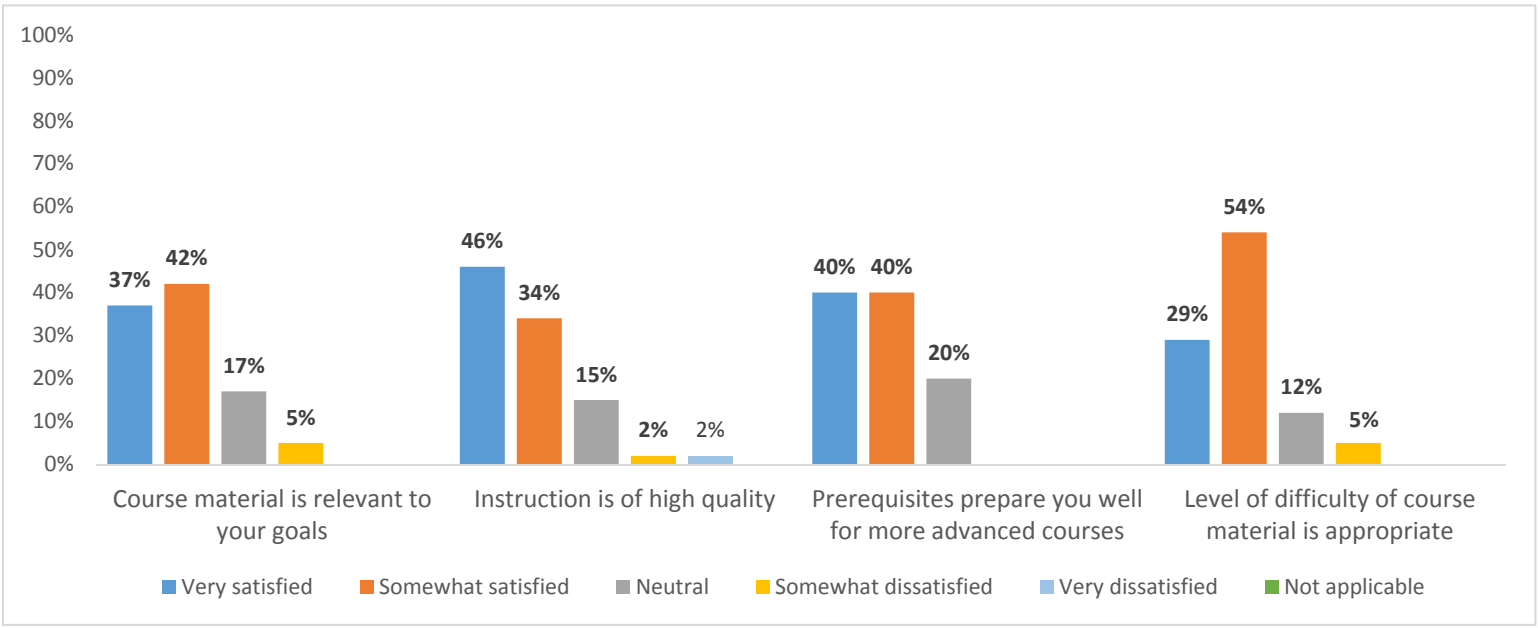
*Note: due to rounding, some totals will not equal 100%.



12. Thinking of the CADD program as a whole, how satisfied are you that:	Frequency					
	Very satisfied	Somewhat satisfied	Neutral	Somewhat dissatisfied	Very dissatisfied	Not applicable
Course material is relevant to your goals	15	17	7	2	0	0
Instruction is of high quality	19	14	6	1	1	0
Prerequisites prepare you well for more advanced courses	16	16	8	0	0	
Level of difficulty of course material is appropriate	12	22	5	2	0	0

12. Thinking of the CADD program as a whole, how satisfied are you that:	Per cent*					
	Very satisfied	Somewhat satisfied	Neutral	Somewhat dissatisfied	Very dissatisfied	Not applicable
Course material is relevant to your goals	37%	42%	17%	5%		
Instruction is of high quality	46%	34%	15%	2%	2%	
Prerequisites prepare you well for more advanced courses	40%	40%	20%			
Level of difficulty of course material is appropriate	29%	54%	12%	5%		

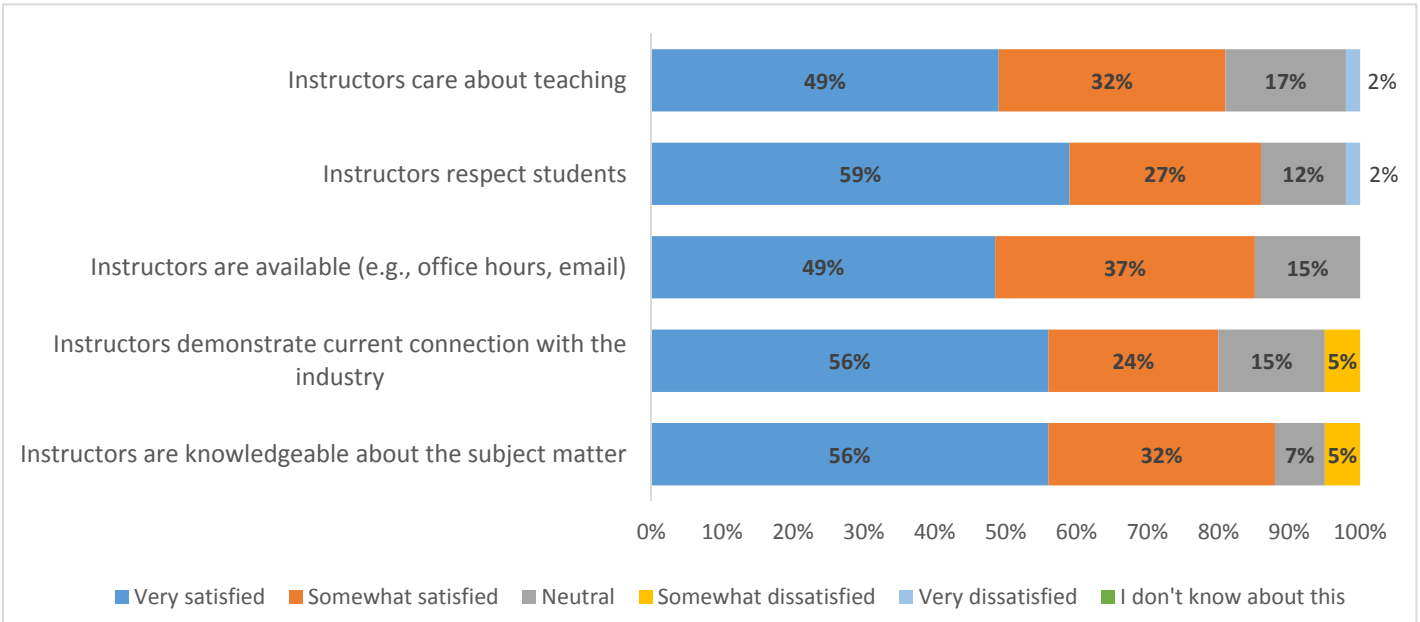
*Note: due to rounding, some totals will not equal 100%.



	Frequency					
13. Thinking of the CADD program as a whole, how satisfied are you that…	Very satisfied	Somewhat satisfied	Neutral	Somewhat dissatisfied	Very dissatisfied	I don't know about this
Instructors are knowledgeable about the subject matter	23	13	3	2	0	0
Instructors demonstrate current connection with the industry	23	10	6	2	0	0
Instructors are available (e.g., office hours, email)	20	15	6	0	0	0
Instructors respect students	24	11	5	0	1	0
Instructors care about teaching	20	13	7	0	1	0

	Per cent*					
13. Thinking of the CADD program as a whole, how satisfied are you that…	Very satisfied	Somewhat satisfied	Neutral	Somewhat dissatisfied	Very dissatisfied	I don't know about this
Instructors are knowledgeable about the subject matter	56%	32%	7%	5%		
Instructors demonstrate current connection with the industry	56%	24%	15%	5%		
Instructors are available (e.g., office hours, email)	49%	37%	15%			
Instructors respect students	59%	27%	12%		2%	
Instructors care about teaching	49%	32%	17%		2%	

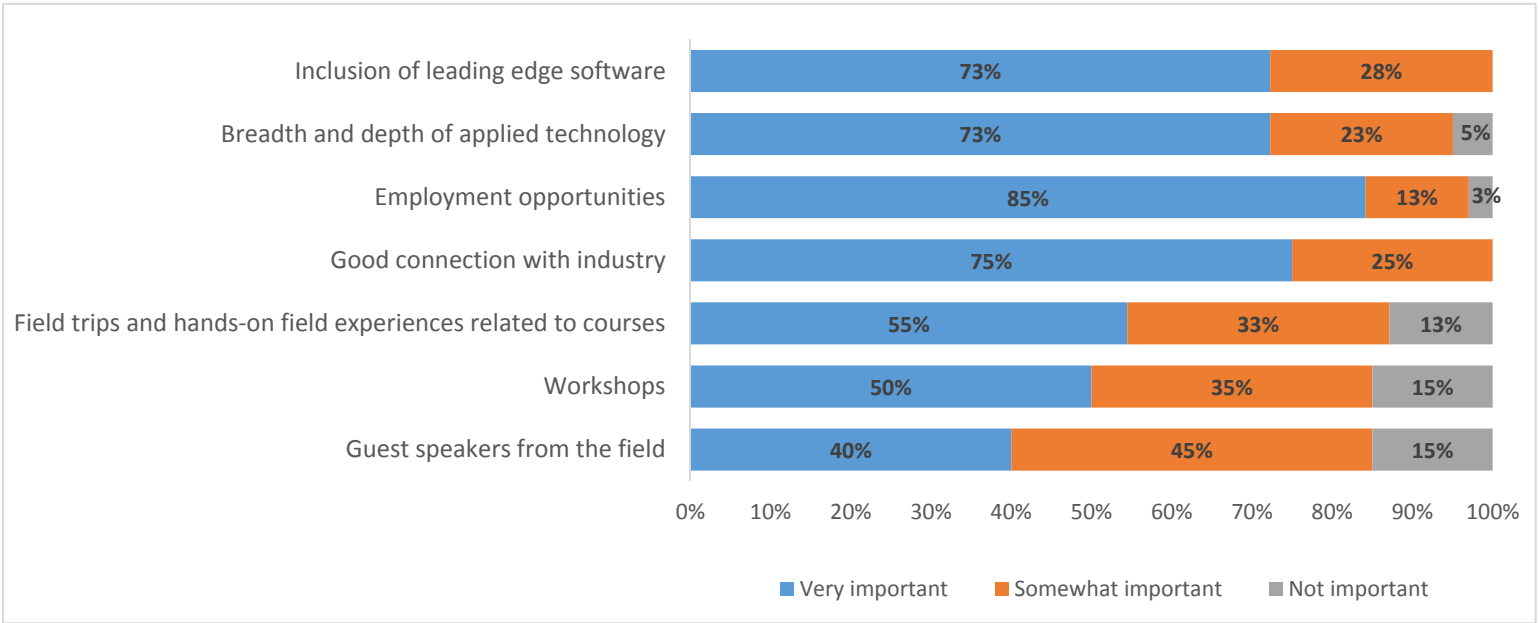
*Note: due to rounding, some totals will not equal 100%.



14. How important are each of the following CADD program features to you:	Frequency		
	Very important	Somewhat important	Not important
Guest speakers from the field	16	18	6
Workshops	20	14	6
Field trips and hands-on field experiences related to courses	22	13	5
Good connection with industry	30	10	0
Employment opportunities	34	5	1
Breadth and depth of applied technology	29	9	2
Inclusion of leading edge software	29	11	0

14. How important are each of the following CADD program features to you:	Per cent*		
	Very important	Somewhat important	Not important
Guest speakers from the field	40%	45%	15%
Workshops	50%	35%	15%
Field trips and hands-on field experiences related to courses	55%	33%	13%
Good connection with industry	75%	25%	
Employment opportunities	85%	13%	3%
Breadth and depth of applied technology	73%	23%	5%
Inclusion of leading edge software	73%	28%	

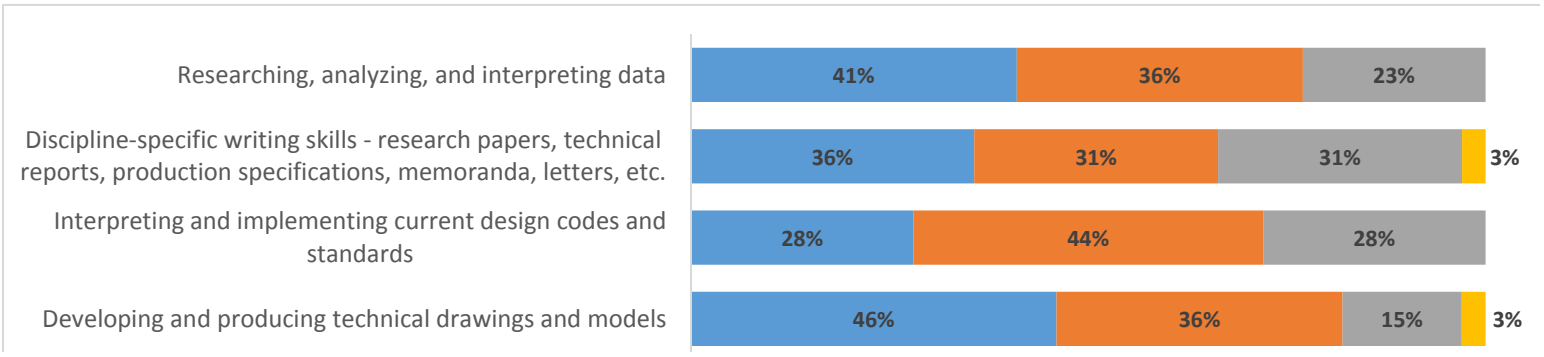
*Note: due to rounding, some totals will not equal 100%.

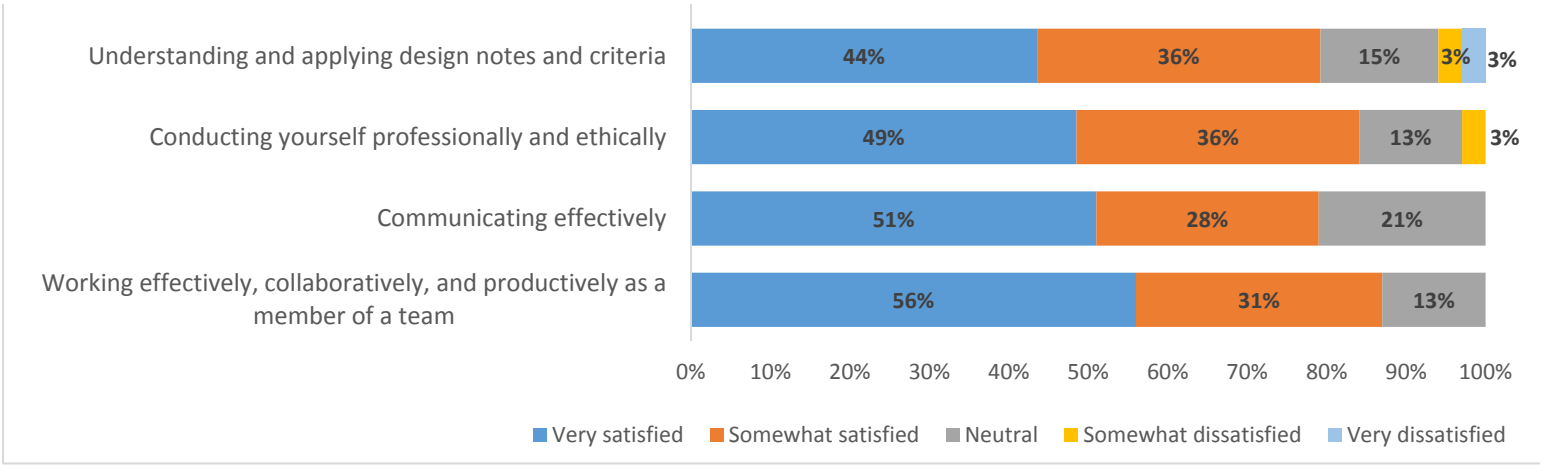


15. How satisfied are you with your opportunities to develop the following industry-specific skills in the CADD program:	Frequency				
	Very satisfied	Somewhat satisfied	Neutral	Somewhat dissatisfied	Very dissatisfied
Researching, analyzing, and interpreting data	16	14	9	0	0
Discipline-specific writing skills - research papers, technical reports, production specifications, memoranda, letters, etc.	14	12	12	1	0
Interpreting and implementing current design codes and standards	11	17	11	0	0
Developing and producing technical drawings and models	18	14	6	1	0
Understanding and applying design notes and criteria	17	14	6	1	1
Conducting yourself professionally and ethically	19	14	5	1	0
Communicating effectively	20	11	8	0	0
Working effectively, collaboratively, and productively as	22	12	5	0	0

15. How satisfied are you with your opportunities to develop the following industry-specific skills in the CADD program:	Per cent*				
	Very satisfied	Somewhat satisfied	Neutral	Somewhat dissatisfied	Very dissatisfied
Researching, analyzing, and interpreting data	41%	36%	23%		
Discipline-specific writing skills - research papers, technical reports, production specifications, memoranda, letters, etc.	36%	31%	31%	3%	
Interpreting and implementing current design codes and standards	28%	44%	28%		
Developing and producing technical drawings and models	46%	36%	15%	3%	
Understanding and applying design notes and criteria	44%	36%	15%	3%	3%
Conducting yourself professionally and ethically	49%	36%	13%	3%	
Communicating effectively	51%	28%	21%		
Working effectively, collaboratively, and productively as a member of a team	56%	31%	13%		

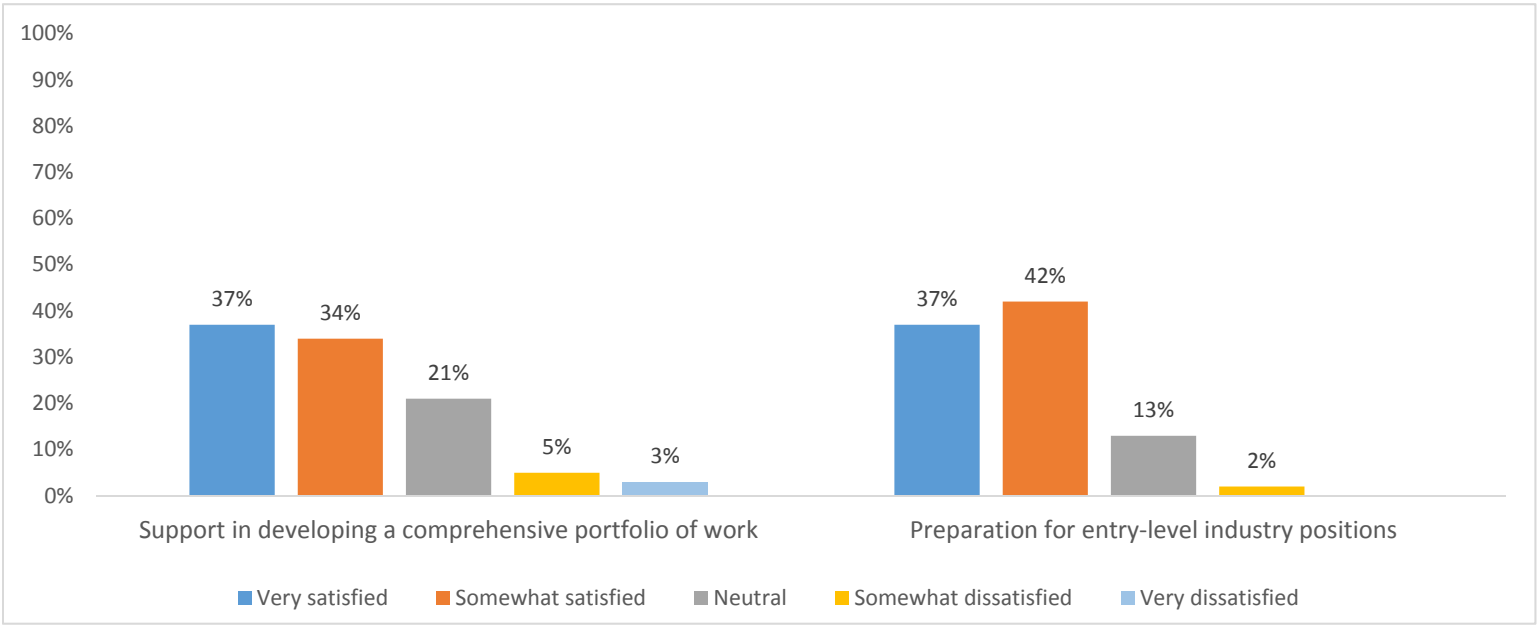
*Note: due to rounding, some totals will not equal 100%.




Understanding and applying design notes and criteria
Conducting yourself professionally and ethically
Communicating effectively
Working effectively, collaboratively, and productively as a member of a team
44%
36%
15%
3%
3%
49%
36%
13%
3%
51%
28%
21%
56%
31%
13%
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Very satisfied
Somewhat satisfied
Neutral
Somewhat dissatisfied
Very dissatisfied

16. How satisfied are you that the CADD program provides you with adequate…	Frequency				
	Very satisfied	Somewhat satisfied	Neutral	Somewhat dissatisfied	Very dissatisfied
Support in developing a comprehensive portfolio of work	14	13	8	2	1
Preparation for entry-level industry positions	14	16	5	3	0

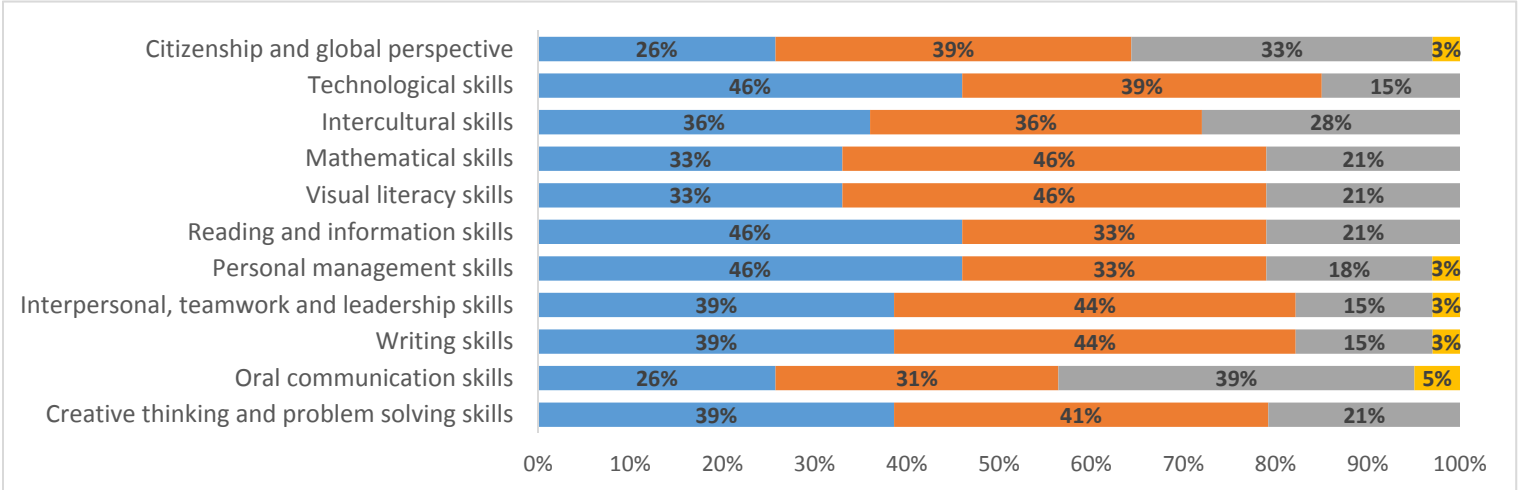
16. How satisfied are you that the CADD program provides you with adequate…	Per cent				
	Very satisfied	Somewhat satisfied	Neutral	Somewhat dissatisfied	Very dissatisfied
Support in developing a comprehensive portfolio of work	37%	34%	21%	5%	3%
Preparation for entry-level industry positions	37%	42%	13%	2%	

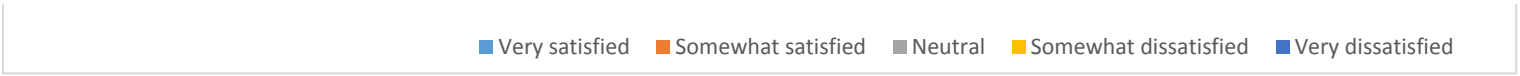


17. How satisfied are you with your opportunities to develop the following essential skills in the CADD program:	Frequency				
	Very satisfied	Somewhat satisfied	Neutral	Somewhat dissatisfied	Very dissatisfied
Creative thinking and problem solving skills	19	15	5	0	0
Oral communication skills	15	16	8	0	0
Writing skills	10	12	15	2	0
Interpersonal, teamwork and leadership skills	15	17	6	1	0
Personal management skills	18	14	6	0	1
Reading and information skills	18	13	7	1	0
Visual literacy skills	18	13	8	0	0
Mathematical skills	13	18	8	0	0
Intercultural skills	14	14	11	0	0
Technological skills	18	15	6	0	0
Citizenship and global perspective	10	15	13	1	0

17. How satisfied are you with your opportunities to develop the following essential skills in the CADD program:	Per cent*				
	Very satisfied	Somewhat satisfied	Neutral	Somewhat dissatisfied	Very dissatisfied
Creative thinking and problem solving skills	39%	41%	21%		
Oral communication skills	26%	31%	39%	5%	
Writing skills	39%	44%	15%	3%	
Interpersonal, teamwork and leadership skills	39%	44%	15%	3%	
Personal management skills	46%	33%	18%	3%	
Reading and information skills	46%	33%	21%		
Visual literacy skills	33%	46%	21%		
Mathematical skills	33%	46%	21%		
Intercultural skills	36%	36%	28%		
Technological skills	46%	39%	15%		
Citizenship and global perspective	26%	39%	33%	3%	

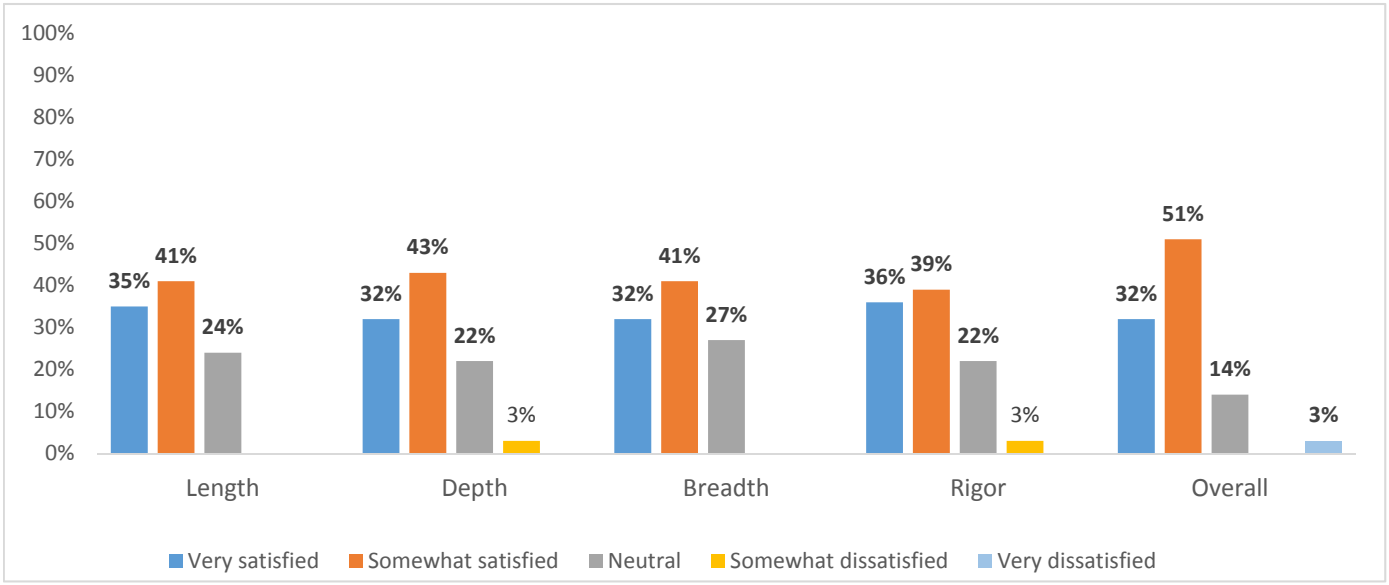
*Note: due to rounding, some totals will not equal 100%.




Very satisfied
Somewhat satisfied
Neutral
Somewhat dissatisfied
Very dissatisfied

18. How satisfied are you with the CADD program, in terms of:	Frequency				
	Very satisfied	Somewhat satisfied	Neutral	Somewhat dissatisfied	Very dissatisfied
Length	13	15	9	0	0
Depth	12	16	8	1	0
Breadth	12	15	10	0	0
Rigor	13	14	8	1	0
Overall	12	19	5	0	1

18. How satisfied are you with the CADD program, in terms of:	Per cent				
	Very satisfied	Somewhat satisfied	Neutral	Somewhat dissatisfied	Very dissatisfied
Length	35%	41%	24%		
Depth	32%	43%	22%	3%	
Breadth	32%	41%	27%		
Rigor	36%	39%	22%	3%	
Overall	32%	51%	14%		3%



19. What aspect(s) of the CADD program work particularly well?
The Instructor
software using
In fact that the class size is very small, therefore the instructor is always available for students when some problems appear.
I enjoy hands-on work and working with Autocad.
The program does a very good job for preparing students for an office environment by encouraging communication between students, and providing assistance with reading design notes.
Excellent instructors
software
Expanding technological skills and specialties are well focused.
I enjoyed most of the topics covered by the course and feel like it gave a good introduction.
I think so far, the program is showing that it is a well rounded one. My main compliment would be that Christina Heinrick is extremely helpful and seems to really care about the students educational experience.

20. What aspect(s) of the CADD program would benefit from change, and how?
More hands on and bringing some one who is related to the field industry.
1150 and 1100 could be merged as one course, too much overlap
hardware upgrade, more campus location
Less focus on documentation and more focus on the technical aspects.
The CADD program requires an individual to be in on open lab days such as Fridays so that students still have someone available to answer questions.
More available courses for the 2nd year. In general, more creative challenge.
More time spent on skills that would be of use in the workplace. Some more time with 3D software.
I think if there is a teacher that isn't very familiar with the course material, it would benefit them and the class if they reviewed their material in advance of class time.
field trips - going out into the field.

21. Can you recommend any other skills that could be added to improve the CADD program?
Depends on the Instructor
some arts courses
Deeper into the structural, architectural, and mechanical fields (maybe another semester?)
hands-on trades skill
3rd dimensional drafting is becoming more important.
I think that there should be more depth on business writing, and e-mail communication as it is a very critical part of working in an office today.
Creative skills; competitive skills.
I personally think that knowledge of Photoshop can help with the more artistic side of CAD.

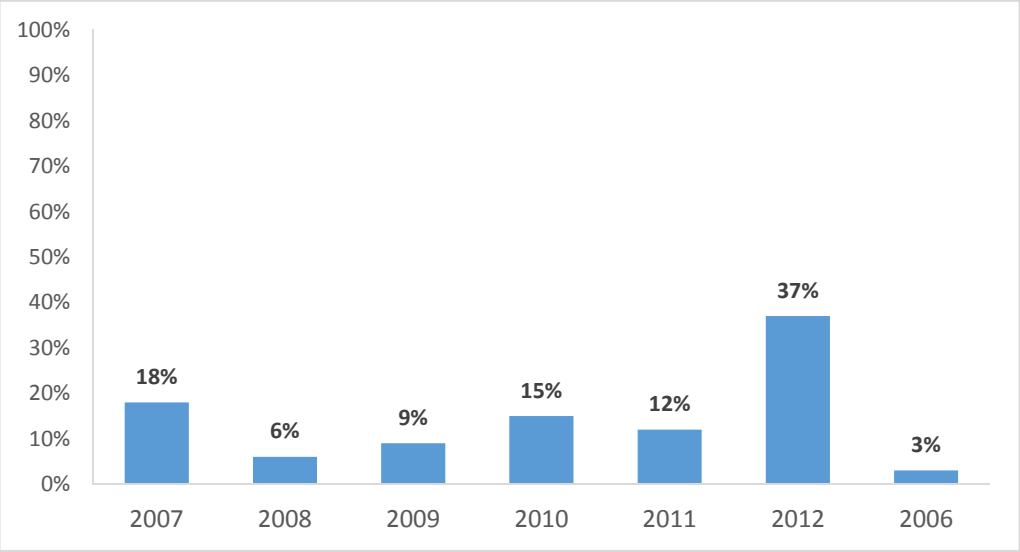
22. Any other comments that would help us understand your experience in the CADD program?
need more real project examples
a good program overall
it will be a great idea if our school makes some connection with the industry/firms/other field related employers, where we can go and train ourselves while we are in program or may be have a co-op kind of opportunity . 2 years off diploma and another 6 months or so for the co-op.
Going well so far, it would be great if there was a way to get more connected with people in the industry (I am aware this may take place further into the program).

Computer Aided Design and Technologies (CADD)
Program Review (2015)

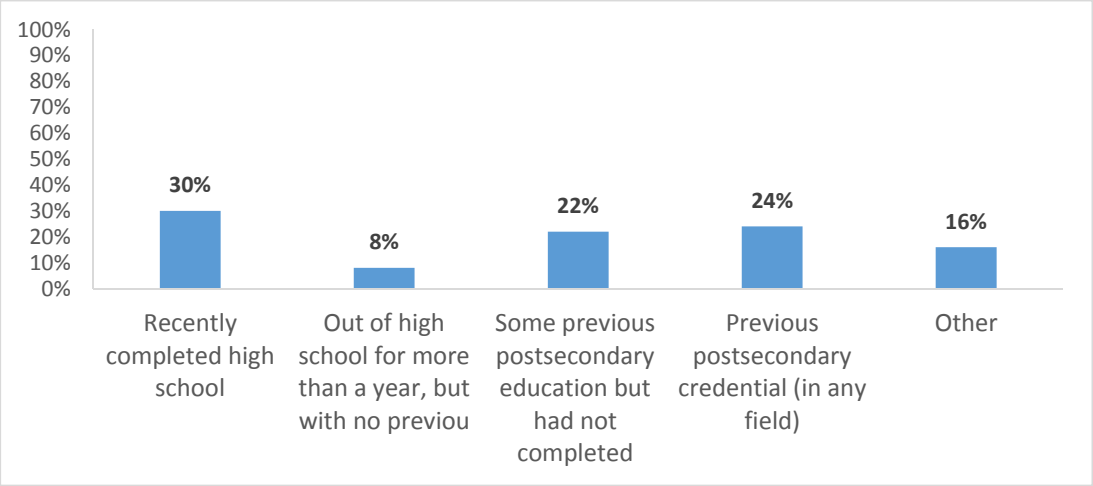
Survey – CADD Alumni

Conducted November 2014

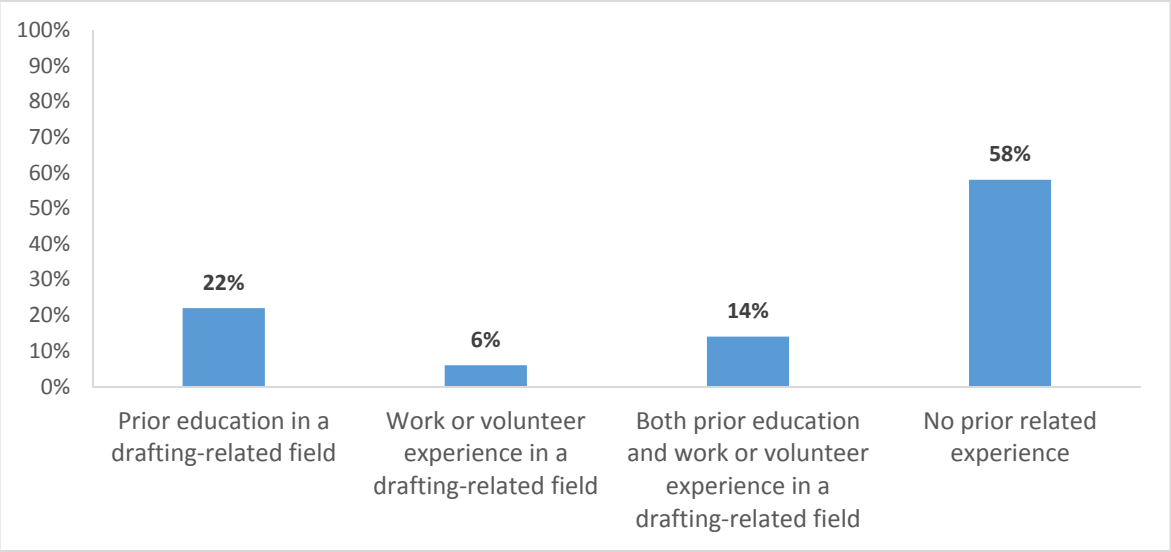
1. When did you enter the KPU CADD program?	Frequency	Valid Percent
2007	6	18%
2008	2	6%
2009	3	9%
2010	5	15%
2011	4	12%
2012	12	37%
2006	1	3%
Total	33	100%
Missing	5	
Total	38	



2. What best describes your educational background when you applied to the CADD program at KPU?	Frequency	Valid Percent
Recently completed high school	11	30%
Out of high school for more than a year, but with no previou	3	8%
Some previous postsecondary education but had not completed	8	22%
Previous postsecondary credential (in any field)	9	24%
Other	6	16%
Total	37	100%
Missing	1	
Total	38	

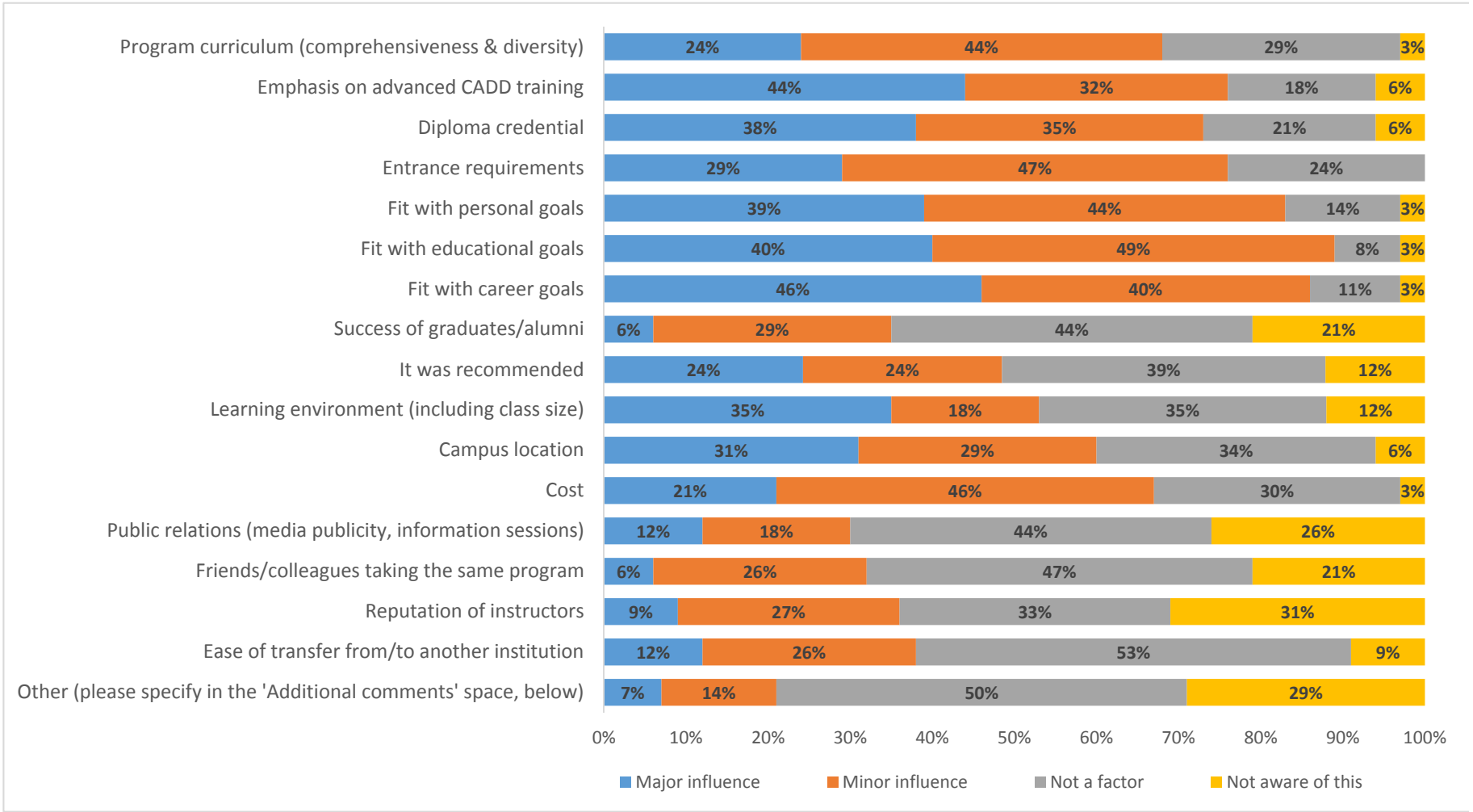


3. What prior experience in a drafting-related field did you have when you applied to the CADD program?	Frequency	Valid Percent
Prior education in a drafting-related field	8	22%
Work or volunteer experience in a drafting-related field	2	6%
Both prior education and work or volunteer experience in a drafting-related field	5	14%
No prior related experience	21	58%
Total	36	100%
Missing	2	
Total	38	

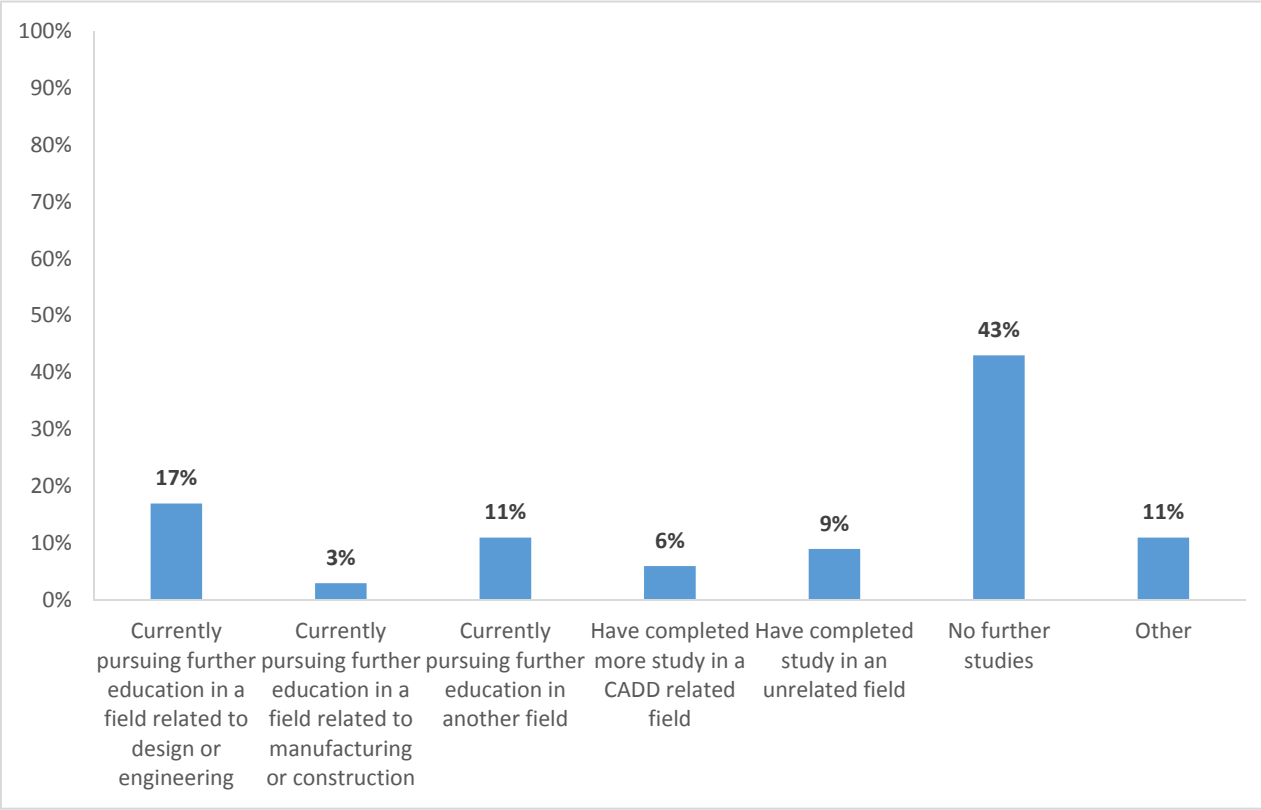


Valid percent

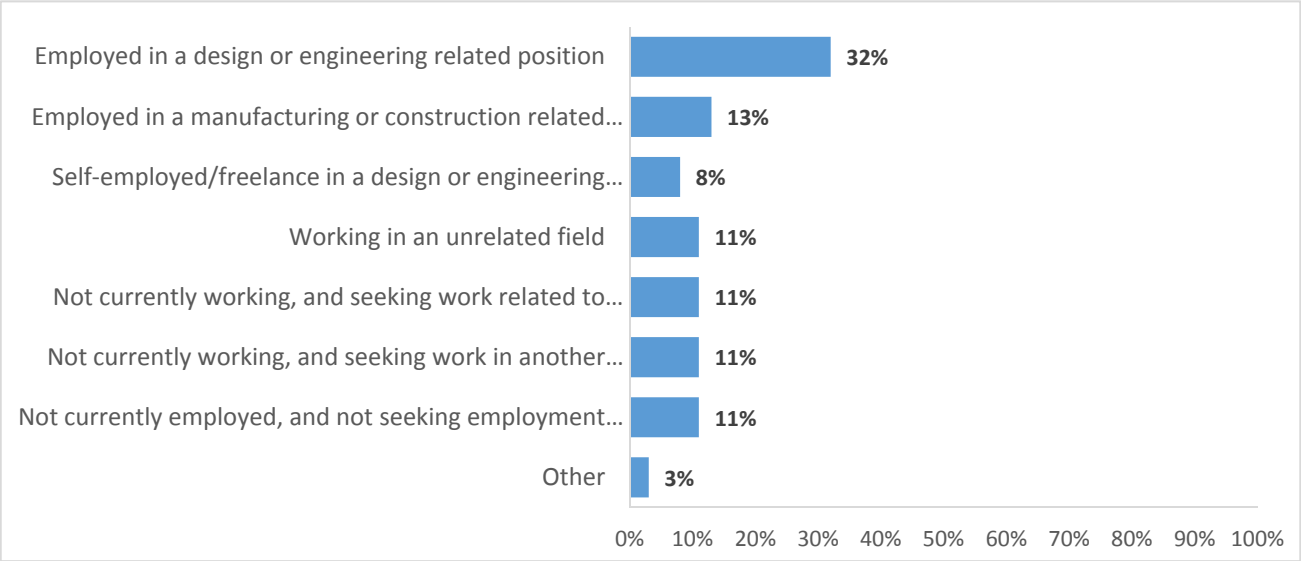
4. To what extent did each of the following influence you to choose Kpu for your CADD education?	Major influence	Minor influence	Not a factor	Not aware of this
Program curriculum (comprehensiveness & diversity)	24%	44%	29%	3%
Emphasis on advanced CADD training	44%	32%	18%	6%
Diploma credential	38%	35%	21%	6%
Entrance requirements	29%	47%	24%	
Fit with personal goals	39%	44%	14%	3%
Fit with educational goals	40%	49%	8%	3%
Fit with career goals	46%	40%	11%	3%
Success of graduates/alumni	6%	29%	44%	21%
It was recommended	24%	24%	39%	12%
Learning environment (including class size)	35%	18%	35%	12%
Campus location	31%	29%	34%	6%
Cost	21%	46%	30%	3%
Public relations (media publicity, information sessions)	12%	18%	44%	26%
Friends/colleagues taking the same program	6%	26%	47%	21%
Reputation of instructors	9%	27%	33%	31%
Ease of transfer from/to another institution	12%	26%	53%	9%
Other (please specify in the 'Additional comments' space, below)	7%	14%	50%	29%


Program curriculum (comprehensiveness & diversity)
24%
44%
29%
3%
Emphasis on advanced CADD training
44%
32%
18%
6%
Diploma credential
38%
35%
21%
6%
Entrance requirements
29%
47%
24%
Fit with personal goals
39%
44%
14%
3%
Fit with educational goals
40%
49%
8%
3%
Fit with career goals
46%
40%
11%
3%
Success of graduates/alumni
6%
29%
44%
21%
It was recommended
24%
24%
39%
12%
Learning environment (including class size)
35%
18%
35%
12%
Campus location
31%
29%
34%
6%
Cost
21%
46%
30%
3%
Public relations (media publicity, information sessions)
12%
18%
44%
26%
Friends/colleagues taking the same program
6%
26%
47%
21%
Reputation of instructors
9%
27%
33%
31%
Ease of transfer from/to another institution
12%
26%
53%
9%
Other (please specify in the 'Additional comments' space, below)
7%
14%
50%
29%
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Major influence
Minor influence
Not a factor
Not aware of this

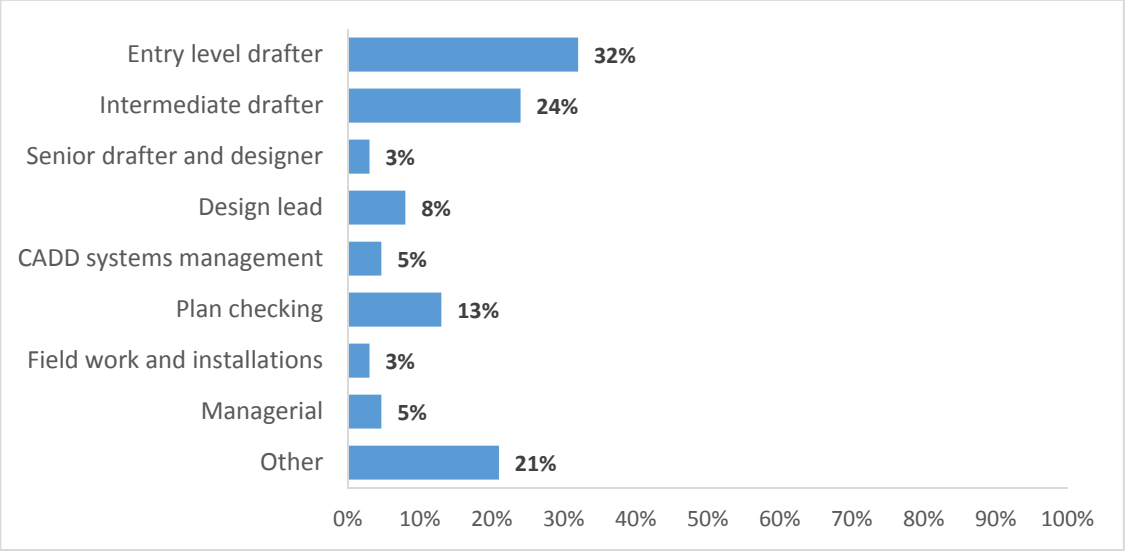
5. Please tell us a little about any further studies you've taken since leaving the CADD program:	Frequency	Valid Percent
Currently pursuing further education in a field related to design or engineering	6	17%
Currently pursuing further education in a field related to manufacturing or construction	1	3%
Currently pursuing further education in another field	4	11%
Have completed more study in a CADD related field	2	6%
Have completed study in an unrelated field	3	9%
No further studies	15	43%
Other	4	11%
Total	35	100%
System	3	
	38	



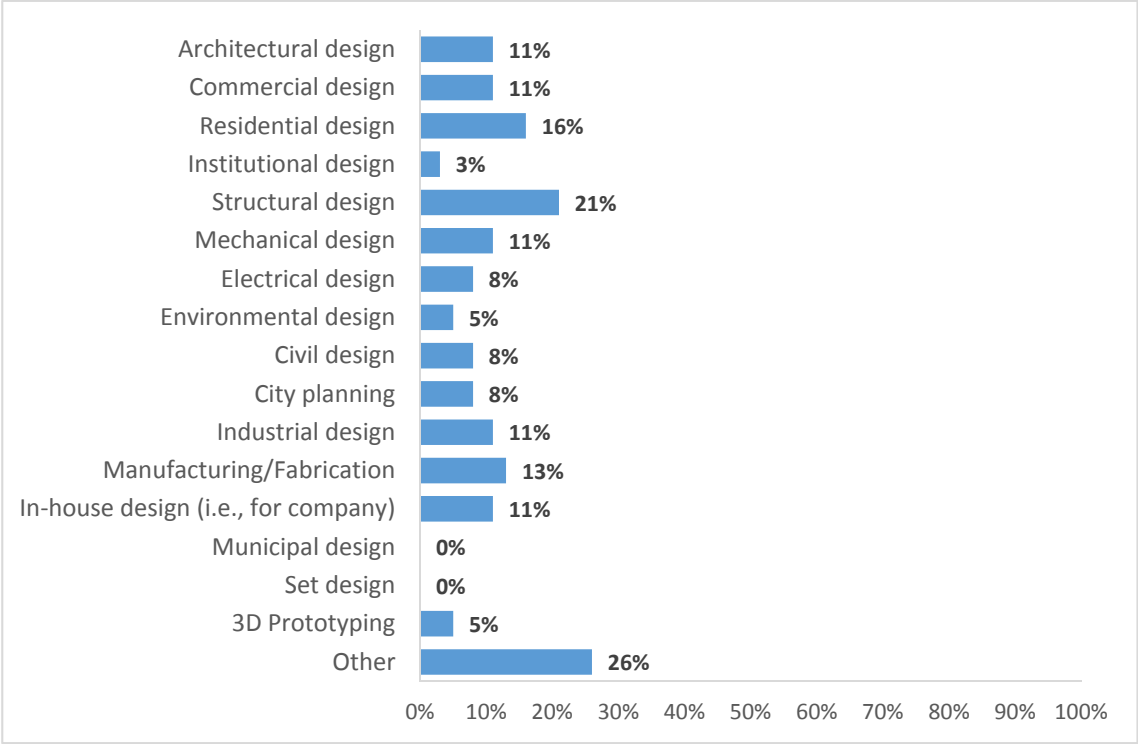
6. Which of the following best describes your current working situation?	Frequency	Valid Percent
Employed in a design or engineering related position	12	32%
Employed in a manufacturing or construction related position	5	13%
Self-employed/freelance in a design or engineering related position	3	8%
Working in an unrelated field	4	11%
Not currently working, and seeking work related to CADD	4	11%
Not currently working, and seeking work in another (or any) field	4	11%
Not currently employed, and not seeking employment (e.g., caring for family, attending school, etc.)	4	11%
Other	1	3%
Total	37	100%
Missing System	1	
	38	



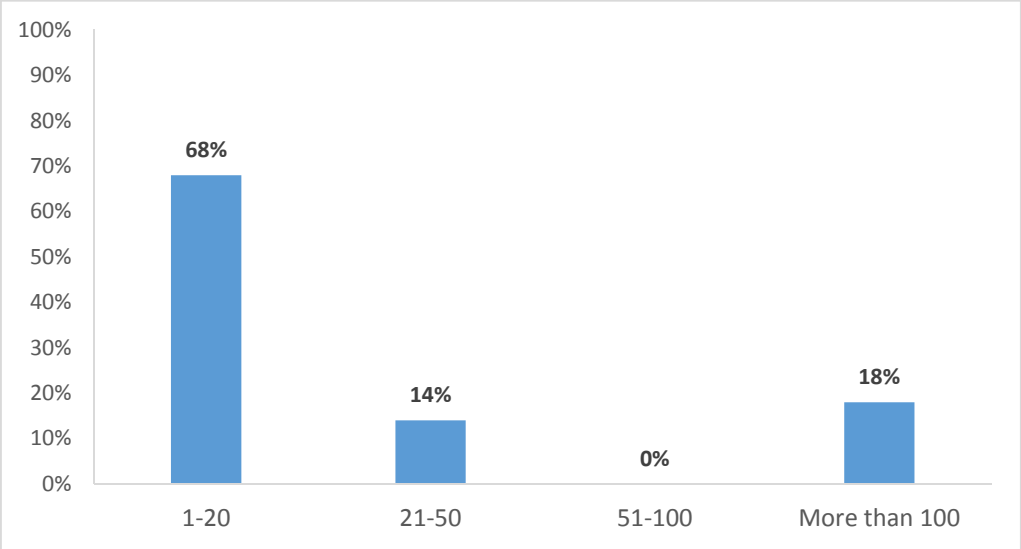
7. In your current position, what are your primary responsibilties? (Please choose all that apply, and add any we've missed.)	Frequency	Valid Percent
Entry level drafter	12	32%
Intermediate drafter	9	24%
Senior drafter and designer	1	3%
Design lead	3	8%
CADD systems management	2	5%
Plan checking	5	13%
Field work and installations	1	3%
Managerial	2	5%
Other	8	21%



8. What is/are the main focus(i) of the business you work for? (Please choose all that apply.)	Frequency	Valid Percent
Architectural design	4	11%
Commercial design	4	11%
Residential design	6	16%
Institutional design	1	3%
Structural design	8	21%
Mechanical design	4	11%
Electrical design	3	8%
Environmental design	2	5%
Civil design	3	8%
City planning	3	8%
Industrial design	4	11%
Manufacturing/Fabrication	5	13%
In-house design (i.e., for company)	4	11%
Municipal design	0	0%
Set design	0	0%
3D Prototyping	2	5%
Other	10	26%

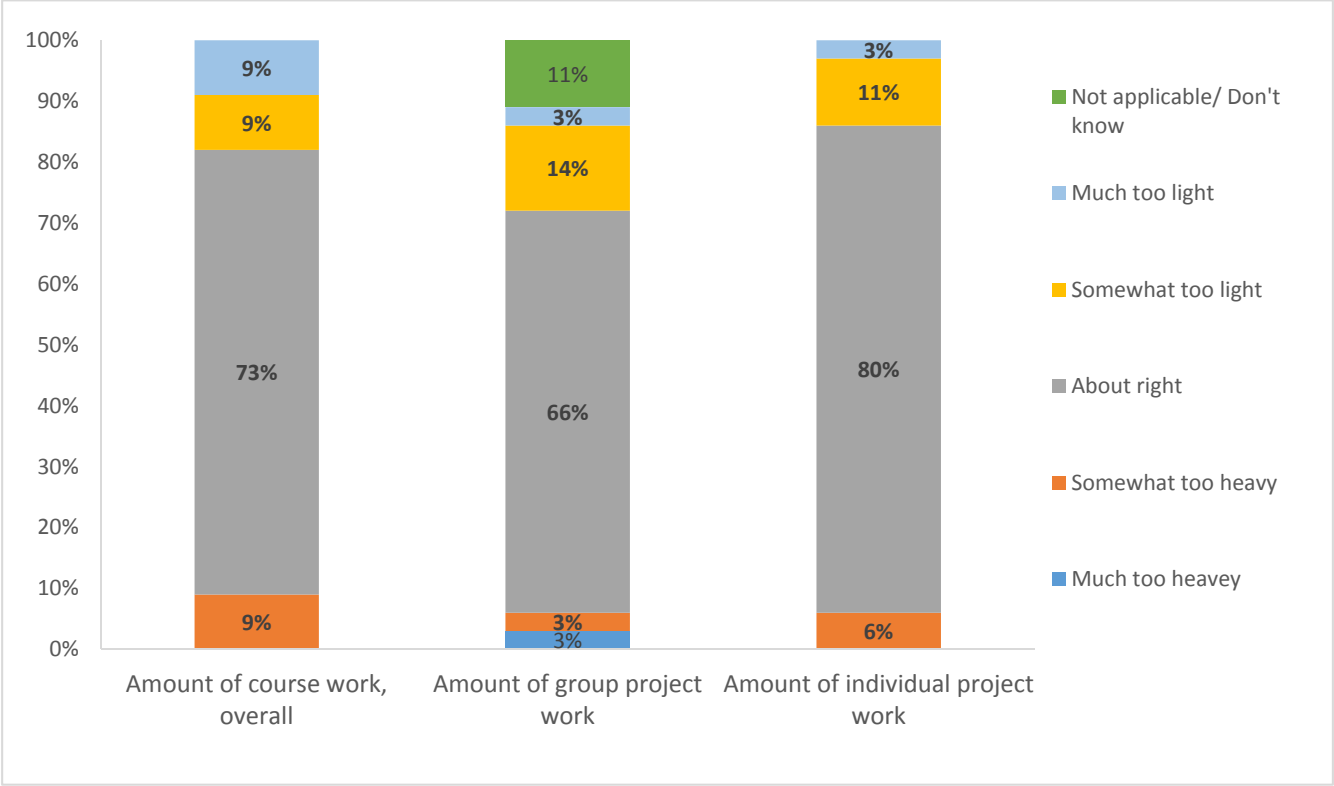


10. How many designers are usually employed in your firm?	Frequency	Valid Percent
1-20	15	68%
21-50	3	14%
51-100		0%
More than 100	4	18%
Total	22	100%
System	16	
	38	

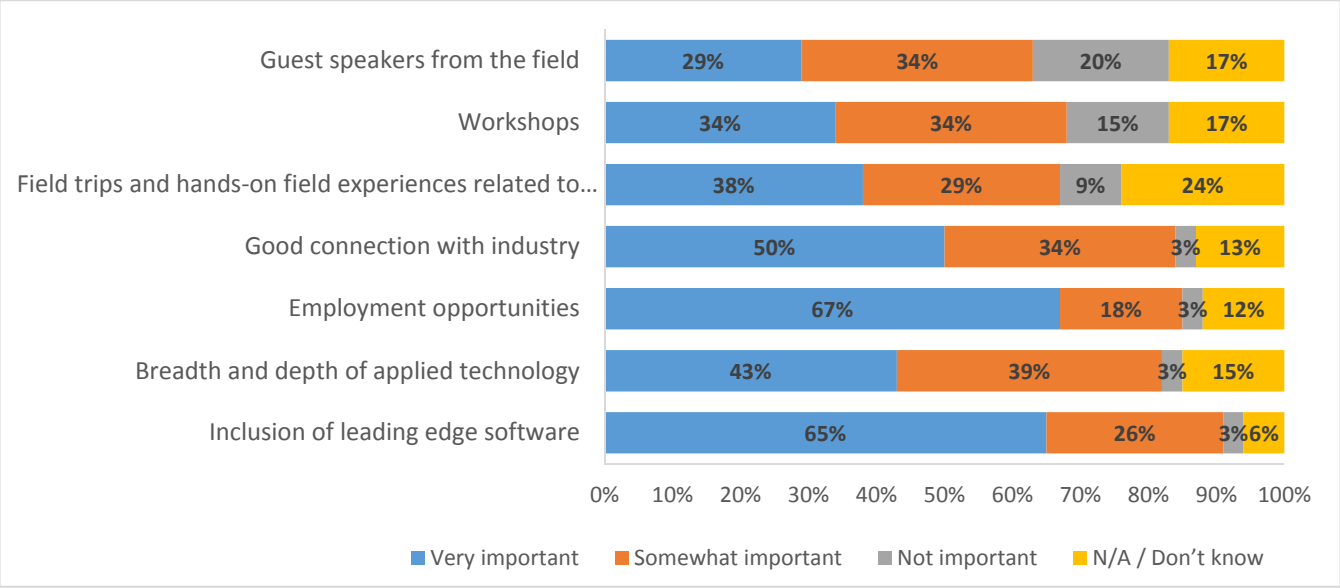


Valid Percent

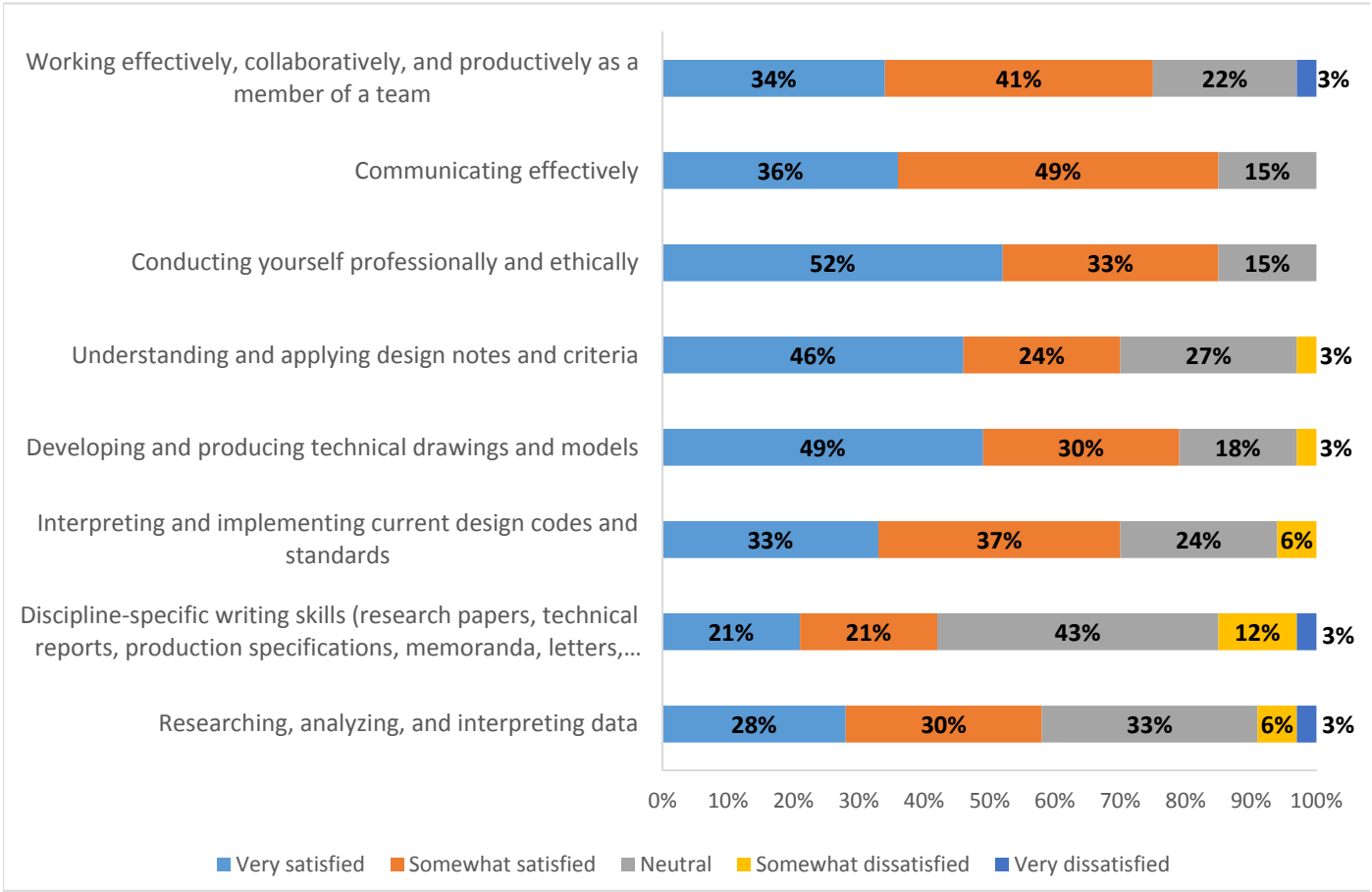
12. In your recollection, was the workload for these aspects of the KPU CADD program…	Much too heavey	Somewhat too heavy	About right	Somewhat too light	Much too light	Not applicable/ Don't know
Amount of course work, overall		9%	73%	9%	9%	
Amount of group project work	3%	3%	66%	14%	3%	11%
Amount of individual project work		6%	80%	11%	3%	



	Valid Percent			
13. How important to your education were the following features of the KPU CADD program?	Very important	Somewhat important	Not important	N/A / Don't know
Guest speakers from the field	29%	34%	20%	17%
Workshops	34%	34%	15%	17%
Field trips and hands-on field experiences related to courses	38%	29%	9%	24%
Good connection with industry	50%	34%	3%	13%
Employment opportunities	67%	18%	3%	12%
Breadth and depth of applied technology	43%	39%	3%	15%
Inclusion of leading edge software	65%	26%	3%	6%

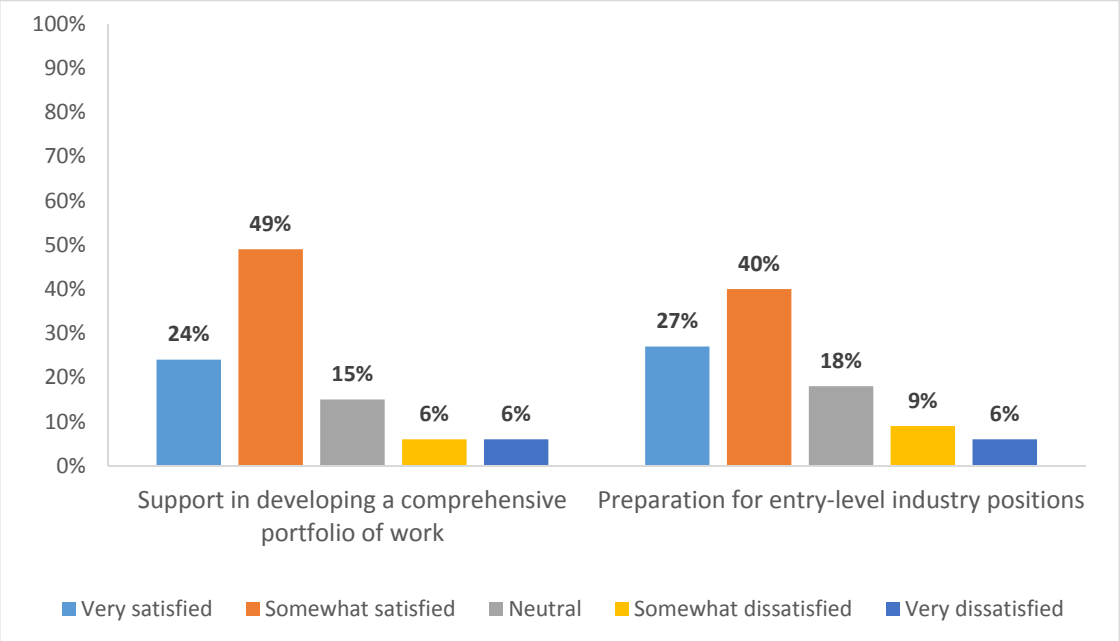


14. How satisfied were you with yoru opportunities to develop the following industry-specific skills in the CADD program:	Valid Percent: Very satisfied	Somewhat satisfied	Neutral	Somewhat dissatisfied	Very dissatisfied
Researching, analyzing, and interpreting data	28%	30%	33%	6%	3%
Discipline-specific writing skills (research papers, technical reports, production specifications, memoranda, letters, etc.)	21%	21%	43%	12%	3%
Interpreting and implementing current design codes and standards	33%	37%	24%	6%	
Developing and producing technical drawings and models	49%	30%	18%	3%	
Understanding and applying design notes and criteria	46%	24%	27%	3%	
Conducting yourself professionally and ethically	52%	33%	15%		
Communicating effectively	36%	49%	15%		
Working effectively, collaboratively, and productively as a member of a team	34%	41%	22%		3%

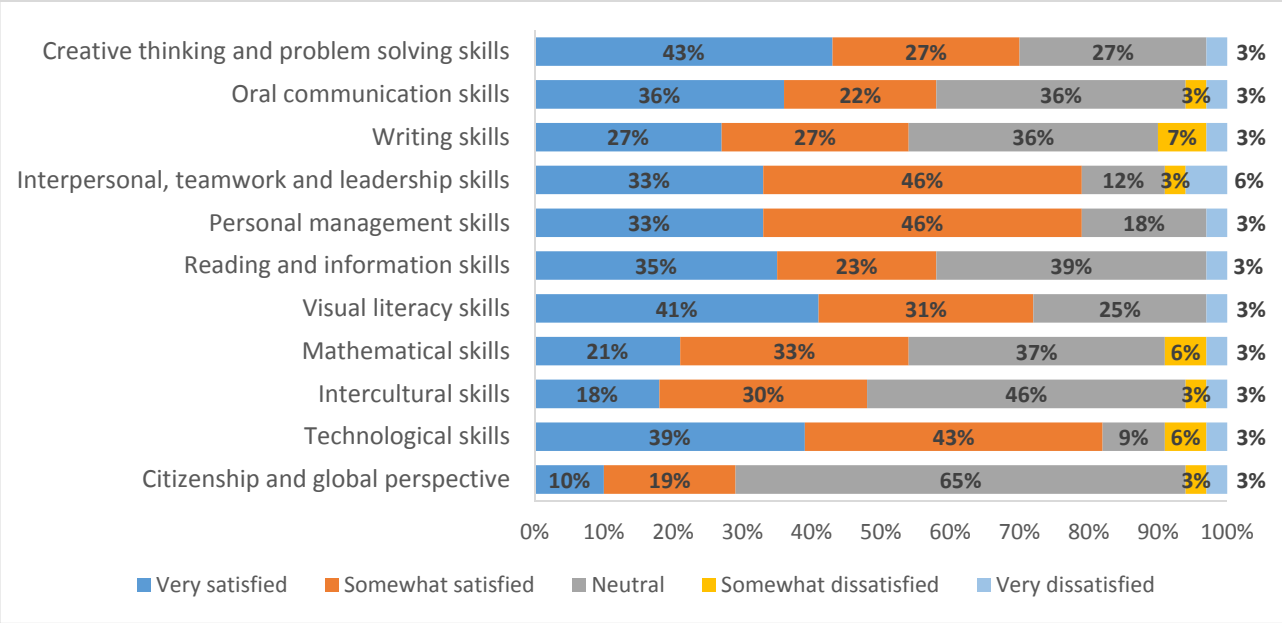


Valid Percent

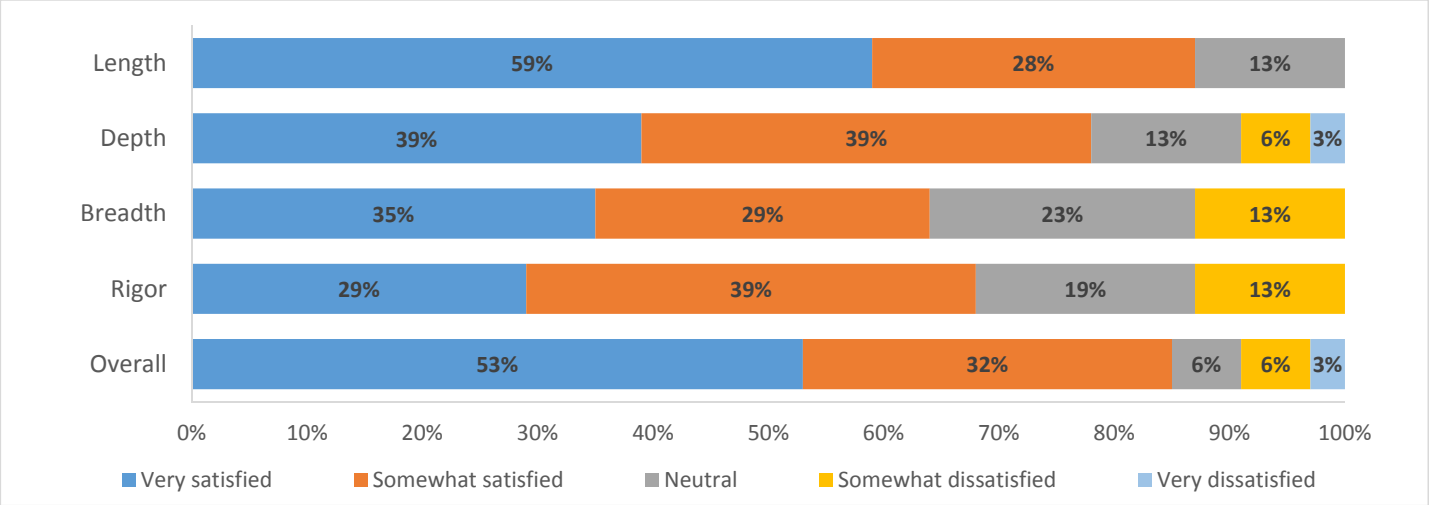
15. How satisfied are you that the CADD program provided you with adequate…	Very satisfied	Somewhat satisfied	Neutral	Somewhat dissatisfied	Very dissatisfied
Support in developing a comprehensive portfolio of work	24%	49%	15%	6%	6%
Preparation for entry-level industry positions	27%	40%	18%	9%	6%



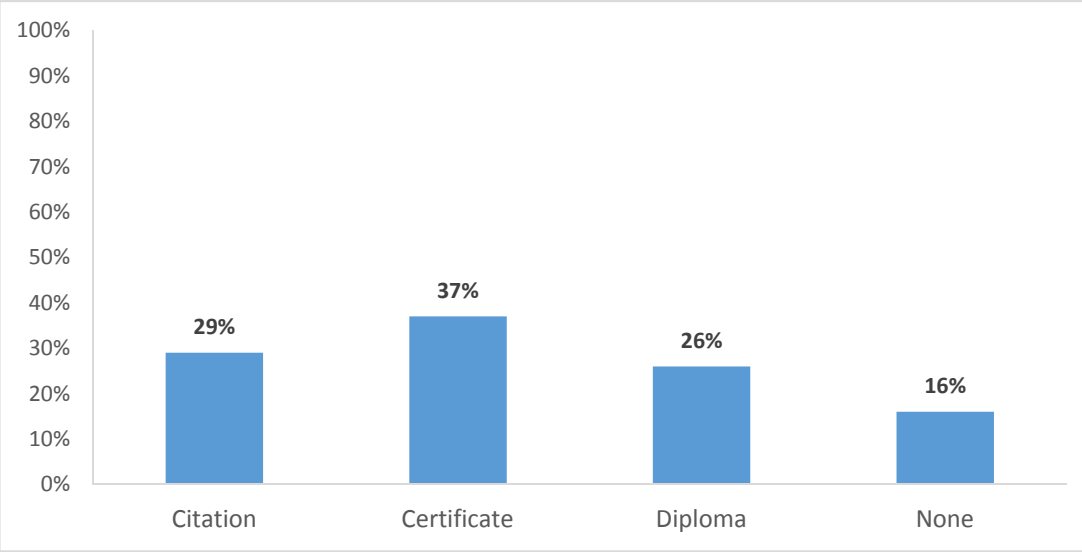
	Valid Percent				
16. How satisfied are you with your opportunities to develop the following *essential skills* in the CADD program?	Very satisfied	Somewhat satisfied	Neutral	Somewhat dissatisfied	Very dissatisfied
Creative thinking and problem solving skills	43%	27%	27%		3%
Oral communication skills	36%	22%	36%	3%	3%
Writing skills	27%	27%	36%	7%	3%
Interpersonal, teamwork and leadership skills	33%	46%	12%	3%	6%
Personal management skills	33%	46%	18%		3%
Reading and information skills	35%	23%	39%		3%
Visual literacy skills	41%	31%	25%		3%
Mathematical skills	21%	33%	37%	6%	3%
Intercultural skills	18%	30%	46%	3%	3%
Technological skills	39%	43%	9%	6%	3%
Citizenship and global perspective	10%	19%	65%	3%	3%



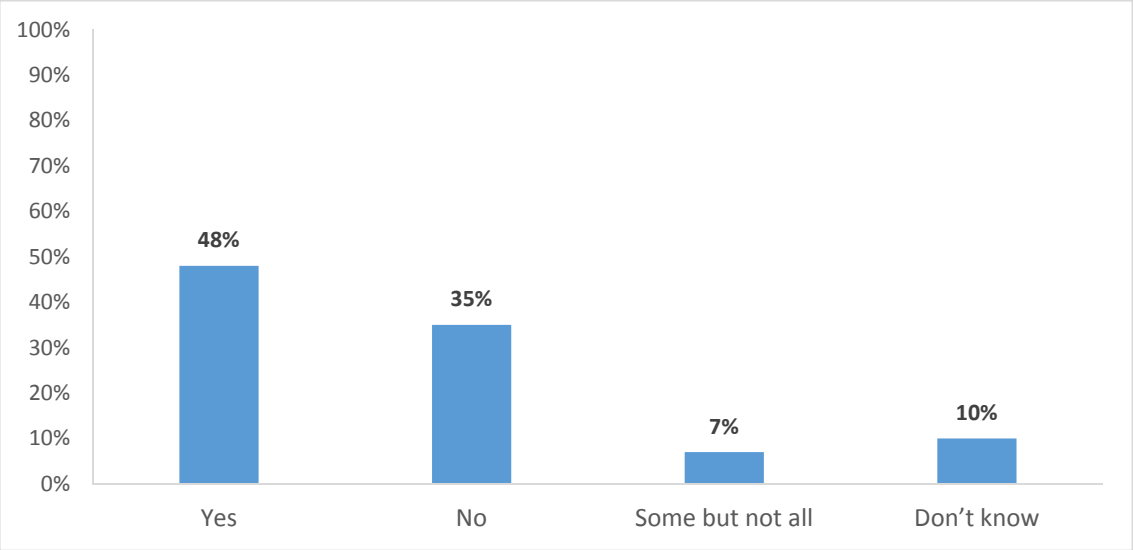
	Valid Percent				
17. How satisfied were you with the CADD program, interms of:	Very satisfied	Somewhat satisfied	Neutral	Somewhat dissatisfied	Very dissatisfied
Length	59%	28%	13%		
Depth	39%	39%	13%	6%	3%
Breadth	35%	29%	23%	13%	
Rigor	29%	39%	19%	13%	
Overall	53%	32%	6%	6%	3%



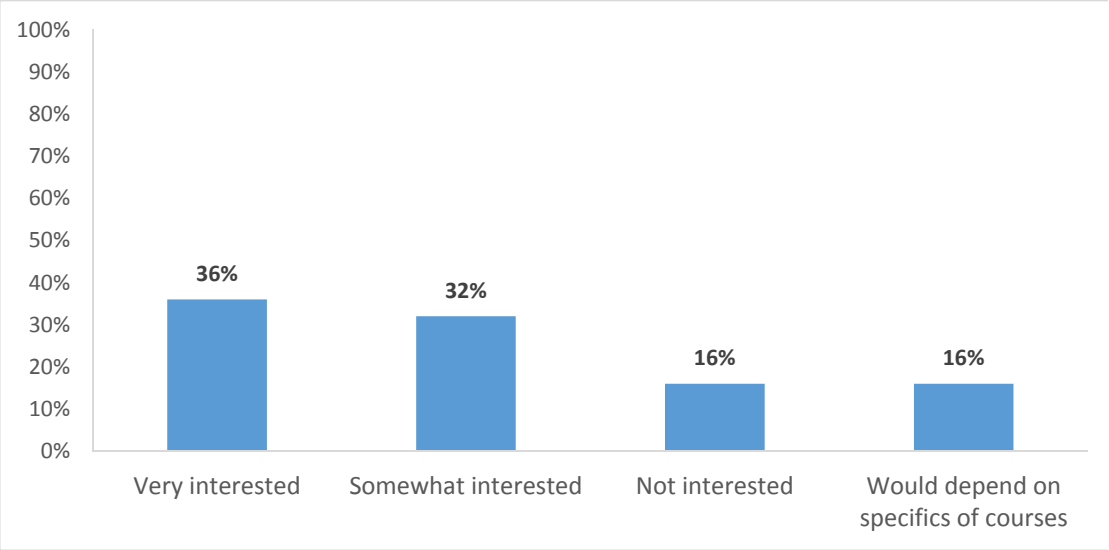
22. Which credential(s) did you fulfill the graduation requirements for in your KPU CADD program? (Please choose all that apply, or *None* , if applicable.)	Frequency	Valid Percent
Citation	11	29%
Certificate	14	37%
Diploma	10	26%
None	6	16%
	41	100%



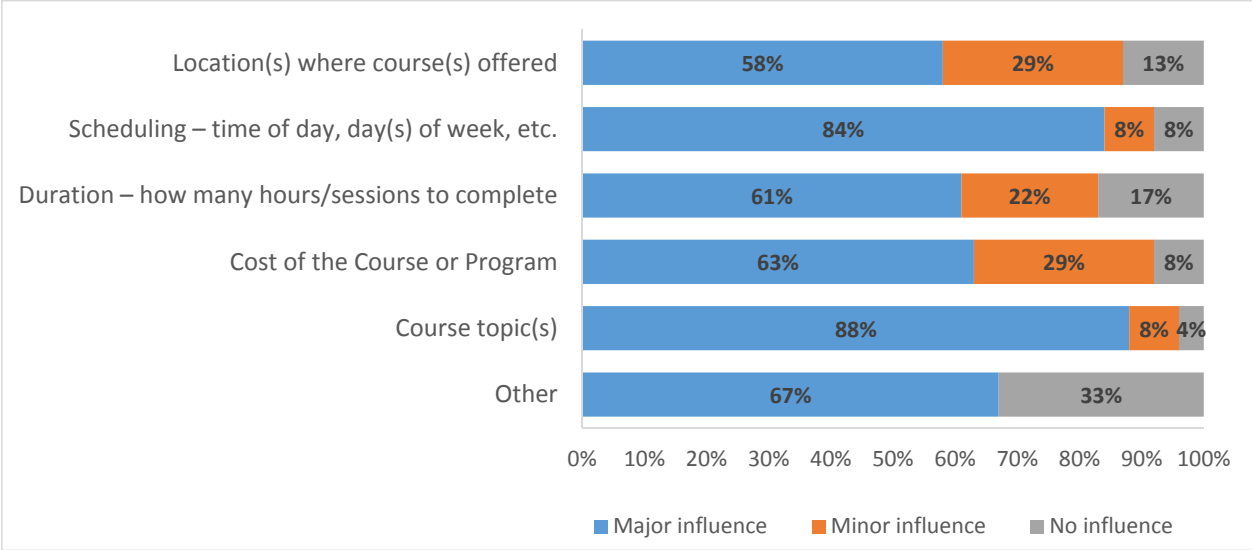
23. Did you apply for and receive the credential(s) you fulfilled the requirements for?	Frequency	Valid Percent
Yes	15	48%
No	11	35%
Some but not all	2	7%
Don't know	3	10%
Total	31	100%
Missing System	7	
Total	38	



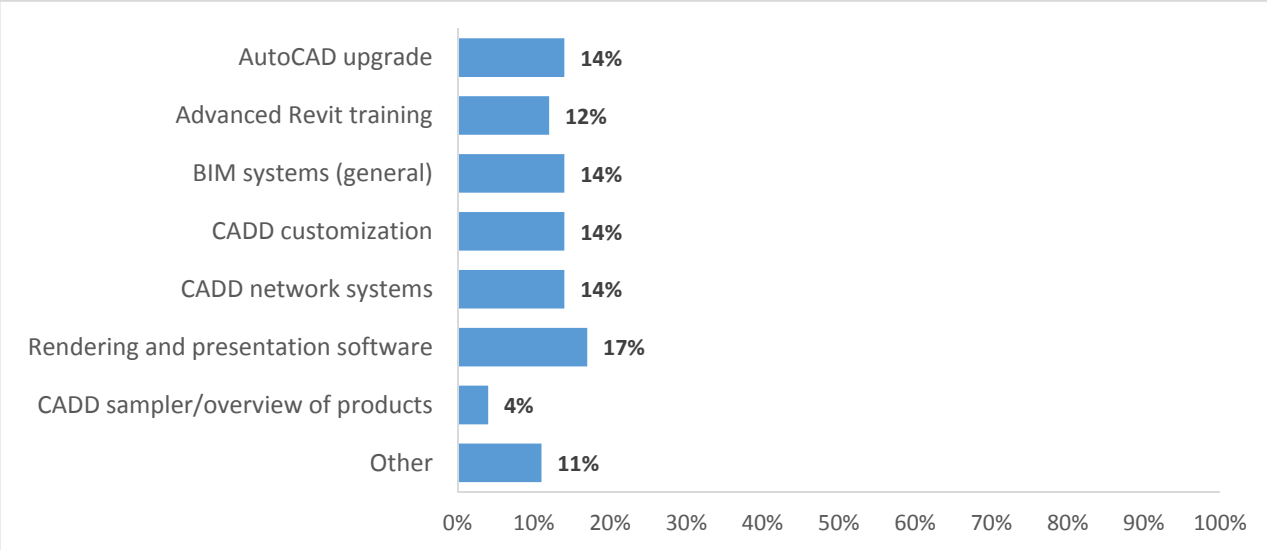
24. In general, how interested would you be in professional upgrade courses?	Frequency	Valid Percent
Very interested	11	36%
Somewhat interested	10	32%
Not interested	5	16%
Would depend on specifics of courses	5	16%
Total	31	100%
System	7	
	38	



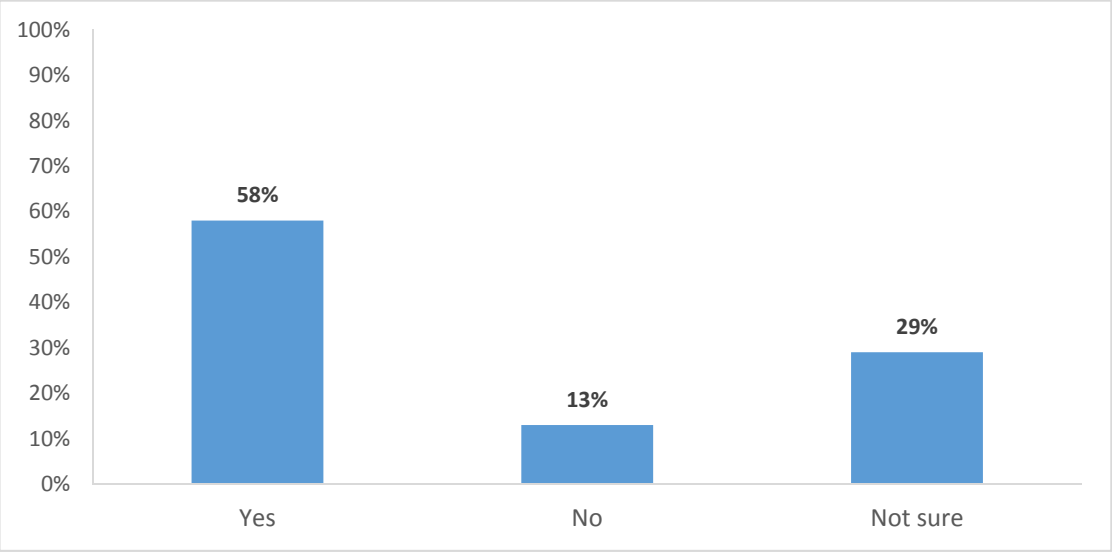
	Valid Percent		
25. To what extent would each of the following influence your decision to take such courses?	Major influence	Minor influence	No influence
Location(s) where course(s) offered	58%	29%	13%
Scheduling – time of day, day(s) of week, etc.	84%	8%	8%
Duration – how many hours/sessions to complete	61%	22%	17%
Cost of the Course or Program	63%	29%	8%
Course topic(s)	88%	8%	4%
Other	67%		33%



26. What specific topics would be of most value or interest to you for Professional Upgrade (CE) courses in CADD Technologies? (Please choose all that apply.)	Frequency	Valid percent
AutoCAD upgrade	10	26%
Advanced Revit training	9	24%
BIM systems (general)	10	26%
CADD customization	10	26%
CADD network systems	10	26%
Rendering and presentation software	12	32%
CADD sampler/overview of products	3	8%
Other	8	21%



27. Would you be interested in further studies if your undergraduate credits could be applied to a degree program, gaining you access directly into the 3rd year of a 4 year degree program?	Frequency	Valid Percent
Yes	18	58%
No	4	13%
Not sure	9	29%
Total	31	100%
System	7	
	38	



Computer Aided Design and Technologies (CADD)
Program Review (2015)

Survey – Industry

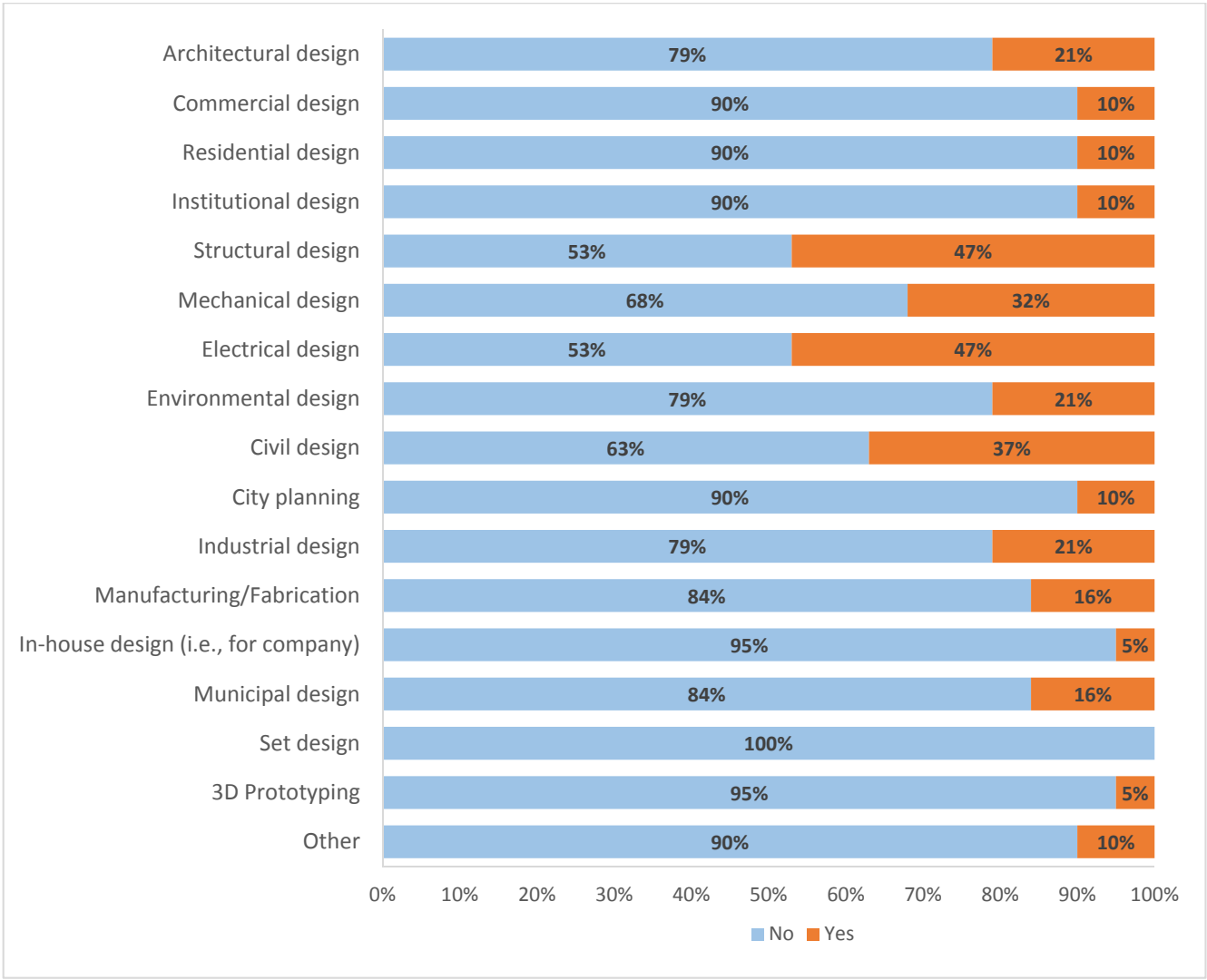
Conducted November 2014

KPU CADD Technologies
Industry Survey for Program Review
Final Data

Thirty-four surveys were sent out, 19 cleaned responses were received, producing a 56% response rate.

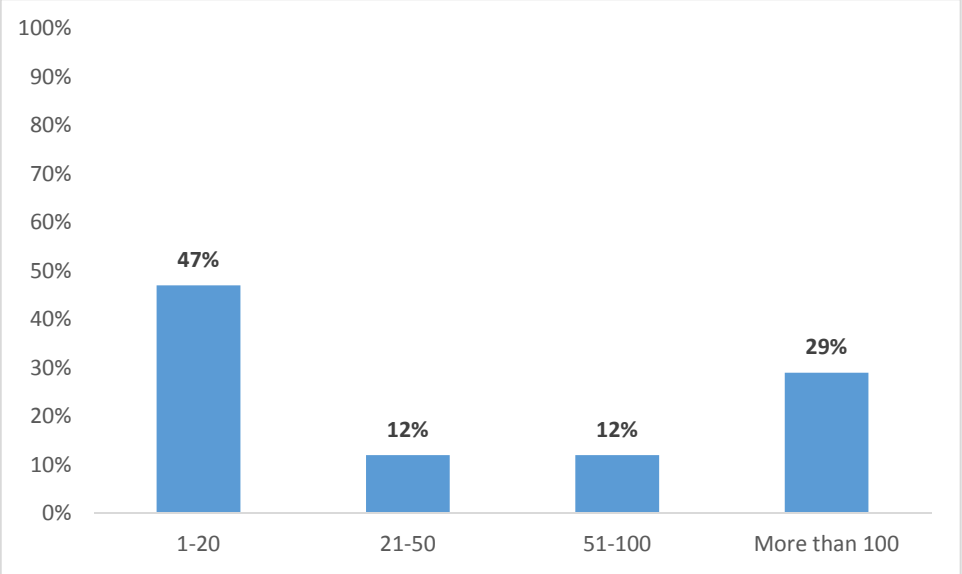
	Frequency	
1. Please tell us a little about your firm. What is/are the main focus(i) of your business? (Please choose all that apply.)	No	Yes
Architectural design	15	4
Commercial design	17	2
Residential design	17	2
Institutional design	17	2
Structural design	10	9
Mechanical design	13	6
Electrical design	10	9
Environmental design	15	4
Civil design	12	7
City planning	17	2
Industrial design	15	4
Manufacturing/Fabrication	16	3
In-house design (i.e., for company)	18	1
Municipal design	16	3
Set design	19	
3D Prototyping	18	1
Other	17	2

	Valid Percent	
1. Please tell us a little about your firm. What is/are the main focus(i) of your business? (Please choose all that apply.)	No	Yes
Architectural design	79%	21%
Commercial design	90%	10%
Residential design	90%	10%
Institutional design	90%	10%
Structural design	53%	47%
Mechanical design	68%	32%
Electrical design	53%	47%
Environmental design	79%	21%
Civil design	63%	37%
City planning	90%	10%
Industrial design	79%	21%
Manufacturing/Fabrication	84%	16%
In-house design (i.e., for company)	95%	5%
Municipal design	84%	16%
Set design	100%	
3D Prototyping	95%	5%
Other	90%	10%


Architectural design
Commercial design
Residential design
Institutional design
Structural design
Mechanical design
Electrical design
Environmental design
Civil design
City planning
Industrial design
Manufacturing/Fabrication
In-house design (i.e., for company)
Municipal design
Set design
3D Prototyping
Other
79%
21%
90%
10%
90%
10%
90%
10%
53%
47%
68%
32%
53%
47%
79%
21%
63%
37%
90%
10%
79%
21%
84%
16%
95%
5%
84%
16%
100%
95%
5%
90%
10%
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
No
Yes

2. What types of client products and services does your firm offer?
Public and Private Sector - Acomplete Range of Services
Electrical consulting for Power, Lighting and communication
BC Hydro, Fortis BC, other power utilities.
Automation and Controls Expertise
Fraser Health is an industry leader of providing medical, diagnosis, inpatient and outpatient care as well as many other services.
Preliminary and Final Designs along with field inspection services
Consulting Engineering Services
C3D, AutoCad,
Bakery and Food service equipment
Architectural focused detailing of exposed structural connections and members.
water parks
I provide construction management and design management consultation services. Currently I am involved with Apex Western Homes Ltd., a firm on the North Shore. I have been brought on board to develop their in house engineering / design / project management department. We now offer complete design build services for the light commercial and residential industry.
Multi-discipline engineering services including structural, geotechnical, mechanical, electrical, civil and environmental services for our Transportation, Hydroelectric, and Mining clients.
Electrical engineering/consulting
Structural consulting, shop and field drawings.
Specializes in the design of wireless communication infrastructure, providing structural and electrical engineering services for thousands of communication installations throughout North America.

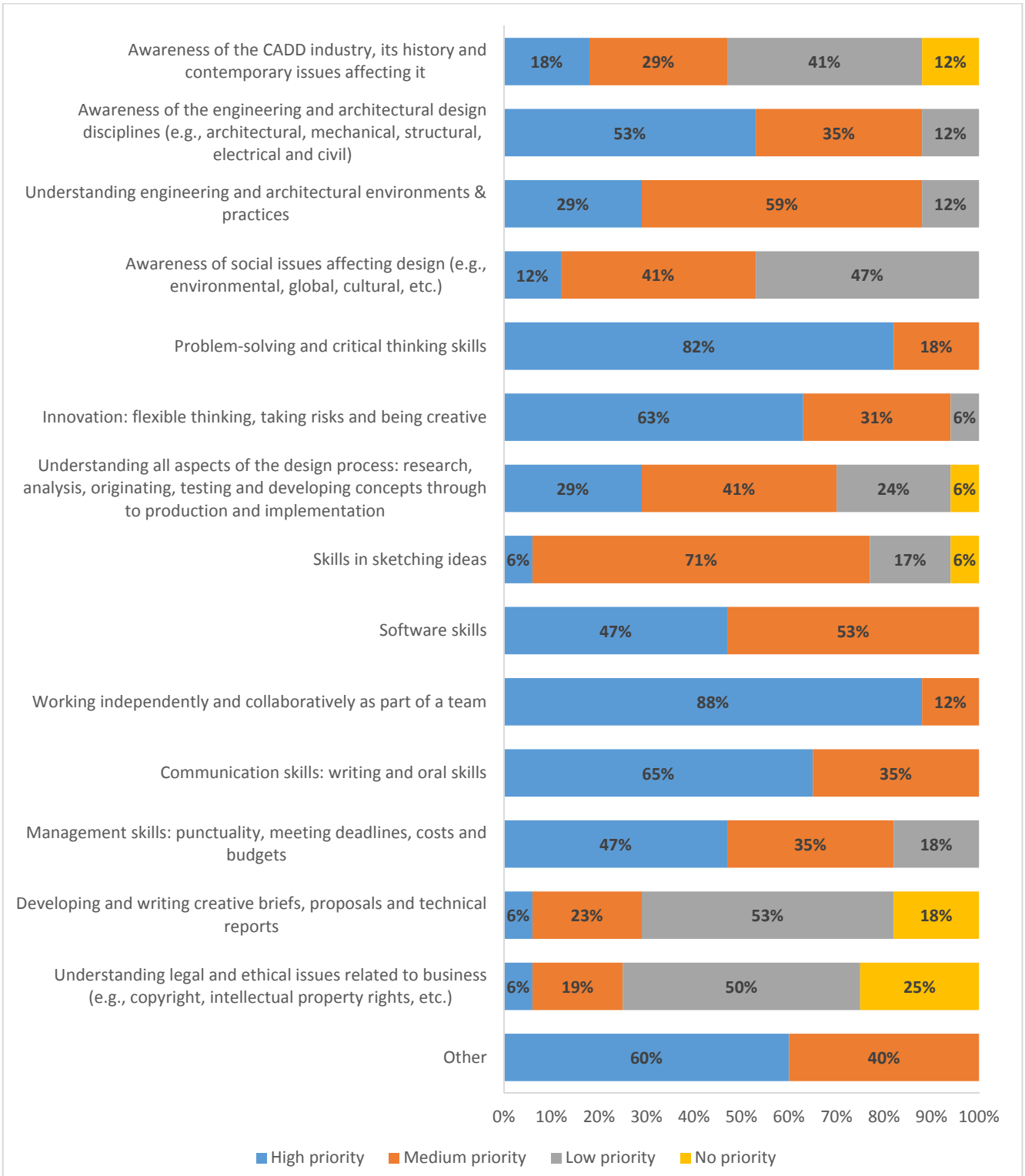
3. How many designers do you usually employ in your firm?	Frequency	Valid Percent
1-20	8	47%
21-50	2	12%
51-100	2	12%
More than 100	5	29%
Total	17	100%
System	2	
	19	



4. And in what areas of specialization?
All Areas
New construction and renovation of commercial, industrial, institutional buildings
Power Utility
Electrical
Electrical & Power Design
Health Care design ranging anywhere from bathroom renos, to O.R., Medical Imaging, and inpatient care design to full fledged operating hospitals
Municipal/Transportation, Process-Mechanical, Structural and Electrical
Mechanical /Piping / Structural /Civil / Electrical / Process /
Civil Engineering, Structural, Environmental, Survey
Food service design
Timber engineering focused, as well as steel and concrete. High end residential, school, commercial and industrial buildings
architectural, structural, mechanical, industrial.
We offer complete design build services for the light commercial and residential industry.
Transportation, Hydroelectric, and Mining infrastructure.
Retail/commercial/industrial
Steel Commercial, Institutional, Infrastructure, Industrial.
telecommunications

	Frequency			
5. In hiring for an entry-level CADD Technician position at your firm, what priority would you give to each of the following:	High priority	Medium priority	Low priority	No priority
Awareness of the CADD industry, its history and contemporary issues affecting it	3	5	7	2
Awareness of the engineering and architectural design disciplines (e.g., architectural, mechanical, structural, electrical and civil)	9	6	2	
Understanding engineering and architectural environments & practices	5	10	2	
Awareness of social issues affecting design (e.g., environmental, global, cultural, etc.)	2	7	8	
Problem-solving and critical thinking skills	14	3		
Innovation: flexible thinking, taking risks and being creative	10	5	1	
Understanding all aspects of the design process: research, analysis, originating, testing and developing concepts through to production and implementation	5	7	4	1
Skills in sketching ideas	1	12	3	1
Software skills	8	9		
Working independently and collaboratively as part of a team	15	2		
Communication skills: writing and oral skills	11	6		
Management skills: punctuality, meeting deadlines, costs and budgets	8	6	3	
Developing and writing creative briefs, proposals and technical reports	1	4	9	3
Understanding legal and ethical issues related to business (e.g., copyright, intellectual property rights, etc.)	1	3	8	4
Other (please specify in the 'Additional comments' space, below)	3	2		

	Valid Percent			
5. In hiring for an entry-level CADD Technician position at your firm, what priority would you give to each of the following:	High priority	Medium priority	Low priority	No priority
Awareness of the CADD industry, its history and contemporary issues affecting it	18%	29%	41%	12%
Awareness of the engineering and architectural design disciplines (e.g., architectural, mechanical, structural, electrical and civil)	53%	35%	12%	
Understanding engineering and architectural environments & practices	29%	59%	12%	
Awareness of social issues affecting design (e.g., environmental, global, cultural, etc.)	12%	41%	47%	
Problem-solving and critical thinking skills	82%	18%		
Innovation: flexible thinking, taking risks and being creative	63%	31%	6%	
Understanding all aspects of the design process: research, analysis, originating, testing and developing concepts through to production and implementation	29%	41%	24%	6%
Skills in sketching ideas	6%	71%	17%	6%
Software skills	47%	53%		
Working independently and collaboratively as part of a team	88%	12%		
Communication skills: writing and oral skills	65%	35%		
Management skills: punctuality, meeting deadlines, costs and budgets	47%	35%	18%	
Developing and writing creative briefs, proposals and technical reports	6%	23%	53%	18%
Understanding legal and ethical issues related to business (e.g., copyright, intellectual property rights, etc.)	6%	19%	50%	25%
Other	60%	40%		


Awareness of the CADD industry, its history and contemporary issues affecting it
18%
29%
41%
12%
Awareness of the engineering and architectural design disciplines (e.g., architectural, mechanical, structural, electrical and civil)
53%
35%
12%
Understanding engineering and architectural environments & practices
29%
59%
12%
Awareness of social issues affecting design (e.g., environmental, global, cultural, etc.)
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41%
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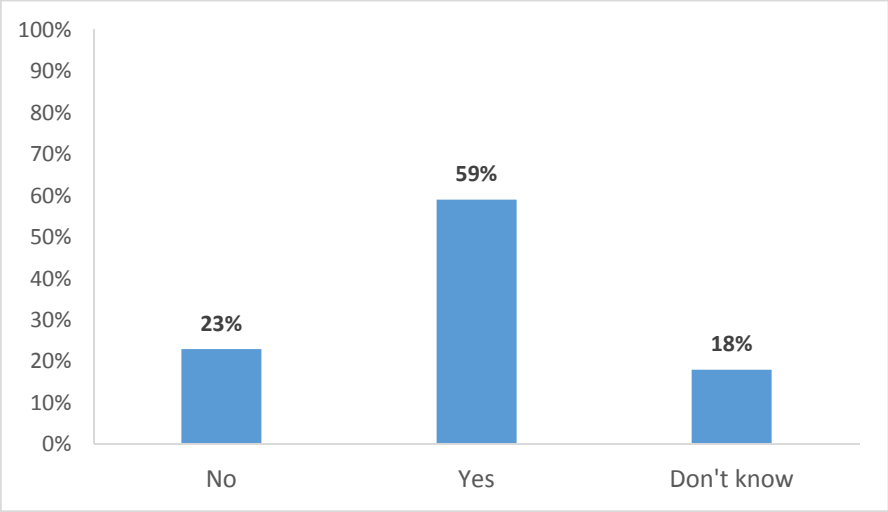
Problem-solving and critical thinking skills
82%
18%
Innovation: flexible thinking, taking risks and being creative
63%
31%
6%
Understanding all aspects of the design process: research, analysis, originating, testing and developing concepts through to production and implementation
29%
41%
24%
6%
Skills in sketching ideas
6%
71%
17%
6%
Software skills
47%
53%
Working independently and collaboratively as part of a team
88%
12%
Communication skills: writing and oral skills
65%
35%
Management skills: punctuality, meeting deadlines, costs and budgets
47%
35%
18%
Developing and writing creative briefs, proposals and technical reports
6%
23%
53%
18%
Understanding legal and ethical issues related to business (e.g., copyright, intellectual property rights, etc.)
6%
19%
50%
25%
Other
60%
40%
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
High priority
Medium priority
Low priority
No priority

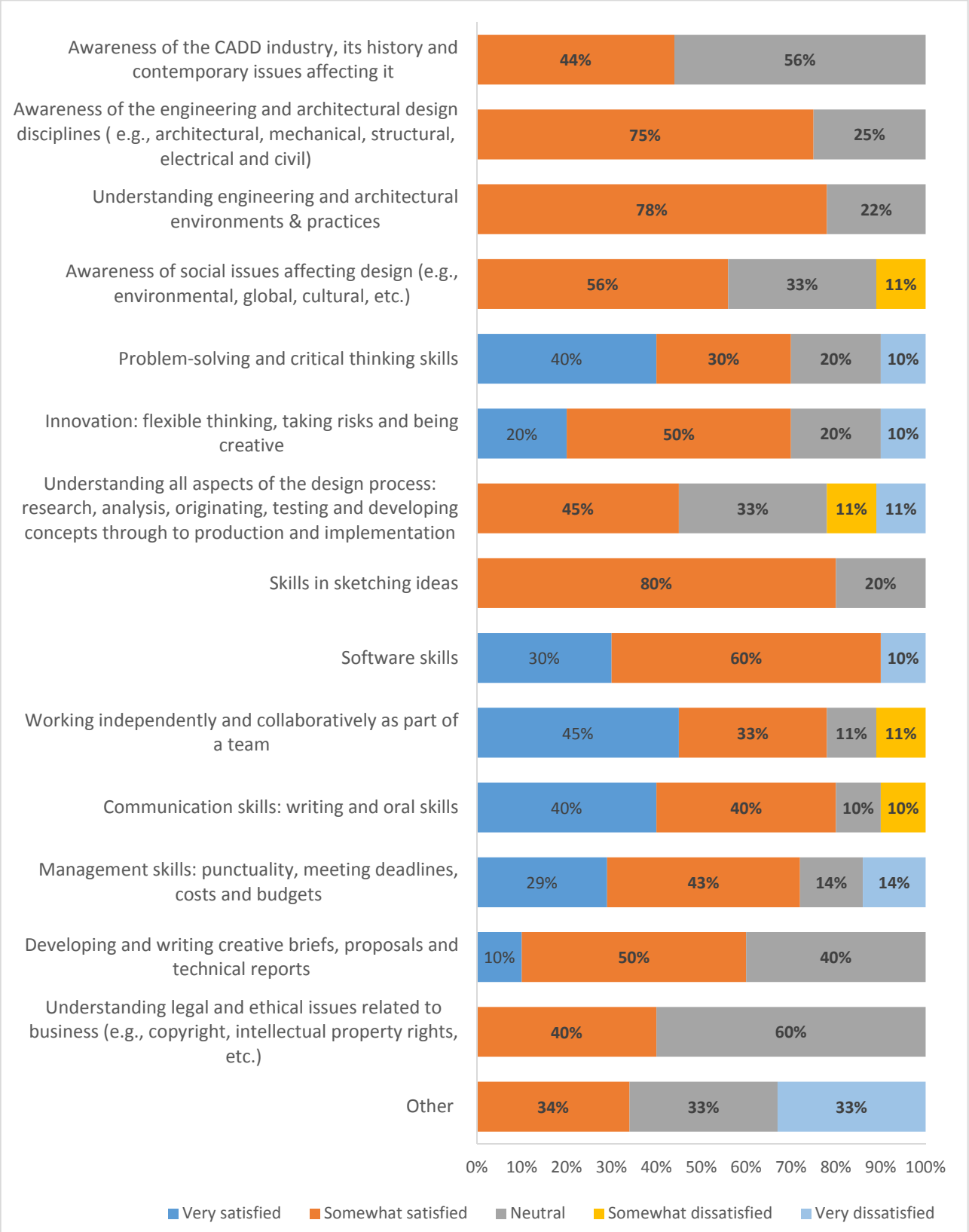
6. Have you hired graduates of KPU's CADD program in the past?	Frequency	Valid Percent
No	4	23%
Yes	10	59%
Don't know	3	18%
Total	17	100%
Missing	2	
Total	19	



7. What were the key attributes or factors that led you to hire a KPU CADD program graduate?
Knowing there is a minimum Cadd proficiency in all graduates.
Prior experience in the industry an referral
KPU has teh best drafting training in Vancouver.
The understanding of AutoCAD
recommendation from teachers and past employers.
Being a former Kwantlen grad. Recognizing it's a good program.
They would have a solid experience in CADD, and understand the basic commands, and be able to do basic markup.
skills

	Frequency				
8. How satisfied have you been with the skills and preparation of your KPU CADD graduate employee(s), in the following respects?	Very satisfied	Somewhat satisfied	Neutral	Somewhat dissatisfied	Very dissatisfied
Awareness of the CADD industry, its history and contemporary issues affecting it		4	5		
Awareness of the engineering and architectural design disciplines (e.g., architectural, mechanical, structural, electrical and civil)		6	2		
Understanding engineering and architectural environments & practices		7	2		
Awareness of social issues affecting design (e.g., environmental, global, cultural, etc.)		5	3	1	
Problem-solving and critical thinking skills	4	3	2		1
Innovation: flexible thinking, taking risks and being creative	2	5	2		1
Understanding all aspects of the design process: research, analysis, originating, testing and developing concepts through to production and implementation		4	3	1	1
Skills in sketching ideas		8	2		
Software skills	3	6			1
Working independently and collaboratively as part of a team	4	3	1	1	
Communication skills: writing and oral skills	4	4	1	1	
Management skills: punctuality, meeting deadlines, costs and budgets	2	3	1		1
Developing and writing creative briefs, proposals and technical reports	1	5	4		
Understanding legal and ethical issues related to business (e.g., copyright, intellectual property rights, etc.)		4	6		
Other		1	1		1

	Valid Percent				
8. How satisfied have you been with the skills and preparation of your KPU CADD graduate employee(s), in the following respects?	Very satisfied	Somewhat satisfied	Neutral	Somewhat dissatisfied	Very dissatisfied
Awareness of the CADD industry, its history and contemporary issues affecting it		44%	56%		
Awareness of the engineering and architectural design disciplines (e.g., architectural, mechanical, structural, electrical and civil)		75%	25%		
Understanding engineering and architectural environments & practices		78%	22%		
Awareness of social issues affecting design (e.g., environmental, global, cultural, etc.)		56%	33%	11%	
Problem-solving and critical thinking skills	40%	30%	20%		10%
Innovation: flexible thinking, taking risks and being creative	20%	50%	20%		10%
Understanding all aspects of the design process: research, analysis, originating, testing and developing concepts through to production and implementation		45%	33%	11%	11%
Skills in sketching ideas		80%	20%		
Software skills	30%	60%			10%
Working independently and collaboratively as part of a team	45%	33%	11%	11%	
Communication skills: writing and oral skills	40%	40%	10%	10%	
Management skills: punctuality, meeting deadlines, costs and budgets	29%	43%	14%		14%
Developing and writing creative briefs, proposals and technical reports	10%	50%	40%		
Understanding legal and ethical issues related to business (e.g., copyright, intellectual property rights, etc.)		40%	60%		
Other		34%	33%		33%


Awareness of the CADD industry, its history and contemporary issues affecting it
44%
56%
Awareness of the engineering and architectural design disciplines (e.g., architectural, mechanical, structural, electrical and civil)
75%
25%
Understanding engineering and architectural environments & practices
78%
22%
Awareness of social issues affecting design (e.g., environmental, global, cultural, etc.)
56%
33%
11%
Problem-solving and critical thinking skills
40%
30%
20%
10%
Innovation: flexible thinking, taking risks and being creative
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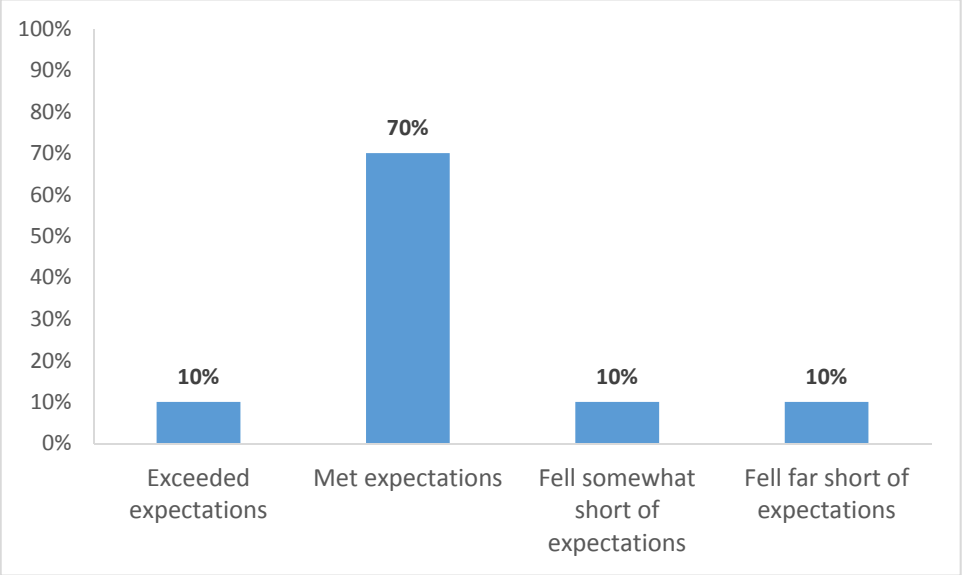
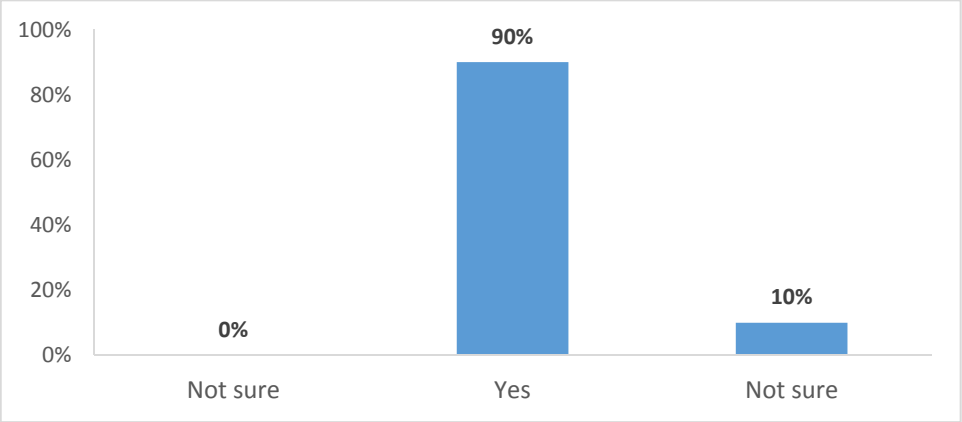
20%
10%
Understanding all aspects of the design process: research, analysis, originating, testing and developing concepts through to production and implementation
45%
33%
11%
11%
Skills in sketching ideas
80%
20%
Software skills
30%
60%
10%
Working independently and collaboratively as part of a team
45%
33%
11%
11%
Communication skills: writing and oral skills
40%
40%
10%
10%
Management skills: punctuality, meeting deadlines, costs and budgets
29%
43%
14%
14%
Developing and writing creative briefs, proposals and technical reports
10%
50%
40%
Understanding legal and ethical issues related to business (e.g., copyright, intellectual property rights, etc.)
40%
60%
Other
34%
33%
33%
0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%
Very satisfied
Somewhat satisfied
Neutral
Somewhat dissatisfied
Very dissatisfied

9. In general, how well were your expectations met by your KPU CADD graduate employee(s)?	Frequency	Valid Percent
Exceeded expectations	1	10%
Met expectations	7	70%
Fell somewhat short of expectations	1	10%
Fell far short of expectations	1	10%
Total	10	100%
Missing	9	
Total	19	



10. Would you hire a KPU CADD graduate again?	Frequency	Valid Percent
Not sure	0	0%
Yes	9	90%
Not sure	1	10%
Total	10	100%
Missing	9	
Total	19	



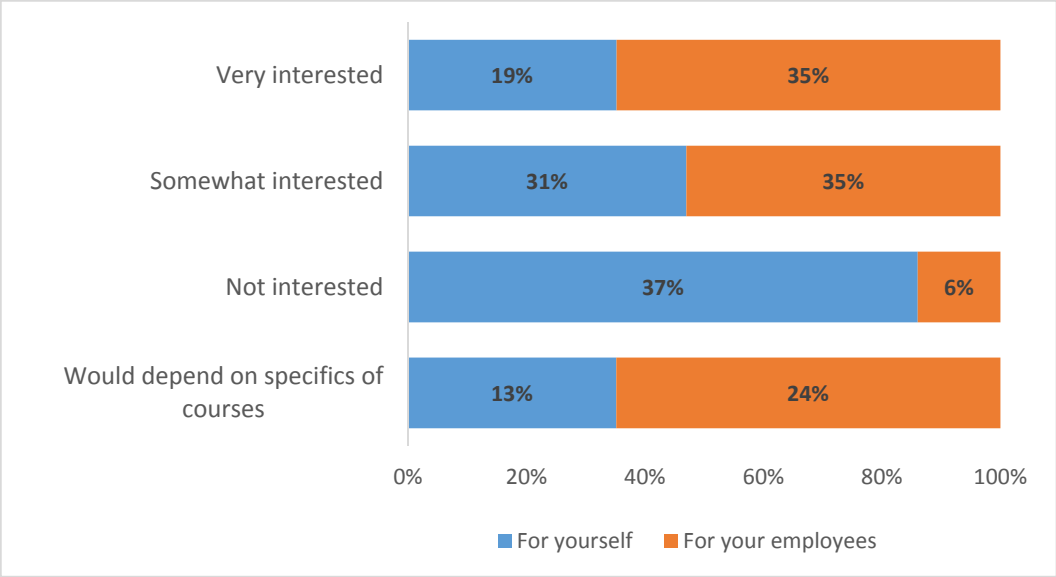
11. If you would hire another KPU CADD grad, please tell us why:
Well rounded training. We still look for industry specific training as the service that we provide isn't generally taught in any schools.
I know the level ans skill sett of the drafter I am hiring
The student meet our needs as a junior CAD tech.
Well trained, good skills
Because of the structural courses offered, they will at least have a basic knowledge of construction.
The grads seem to have a good basic understanding of autocad and related software.
We would require a cad test to be completed to make sure the grad knows cad.
Because they have completed the CADD grad program.

12. If you would not hire another KPU CADD grad, please tell us why not:
Disappointed with the lack of CADD skill. &CR;&LF;No knowledge of the basic commands or xrefs.

Q13. What comes to mind when you think about KPU's CADD program and its graduates?
Solid CAD background and willingness to learn
Comprehensive
Quality graduates
I know only of one of your former teachers in George Cawdry. Previously, he suggested that I apply to be a teacher in your program.
Students looking to make a mark in the industry that have been well trained using the latest technologies and tools
I myself graduated through the program and have high regards for it.
skill
I am a graduate of KPU and I relate my learning experience their to other institutions where I've also studied. I am constantly comparing the needs of my industry with the products of these institutions.
We've had very good experience in the past with KPU graduates, and thought highly of the program, which lead us bring another one into our company. Sadly, the cad skills were lacking.
Lack of steel detailing knowledge
good education.

	Frequency			
14. Please tell us about your potential interest in Professional Upgrade (CE) courses in CADD Technologies if they were offered at KPU. In general, how interested would you be in such courses?	Very interested	Somewhat interested	Not interested	Would depend on specifics of courses
For yourself	3	5	6	2
For your employees	6	6	1	4

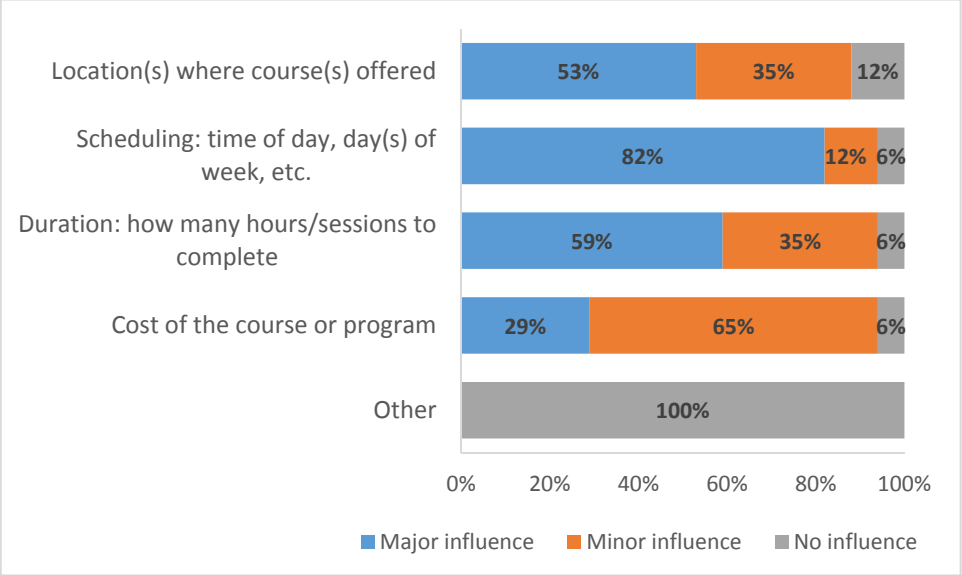
14. Please tell us about your potential interest in Professional Upgrade (CE) courses in CADD Technologies if they were offered at KPU. In general, how interested would you be in such courses?	Valid Percent			
	Very interested	Somewhat interested	Not interested	Would depend on specifics of courses
For yourself	19%	31%	37%	13%
For your employees	35%	35%	6%	24%



15. To what extent would each of the following influence your decision to take such courses, or to encourage your employees to take them?	Frequency		
	Major influence	Minor influence	No influence
Location(s) where course(s) offered	9	6	2
Scheduling: time of day, day(s) of week, etc.	14	2	1
Duration: how many hours/sessions to complete	10	6	1
Cost of the course or program	5	11	1
Other			2

15. To what extent would each of the following influence your decision to take such courses, or to encourage your employees to take them?	Valid percent		
	Major influence	Minor influence	No influence
Location(s) where course(s) offered	53%	35%	12%
Scheduling: time of day, day(s) of week, etc.	82%	12%	6%
Duration: how many hours/sessions to complete	59%	35%	6%
Cost of the course or program	29%	65%	6%
Other			100%

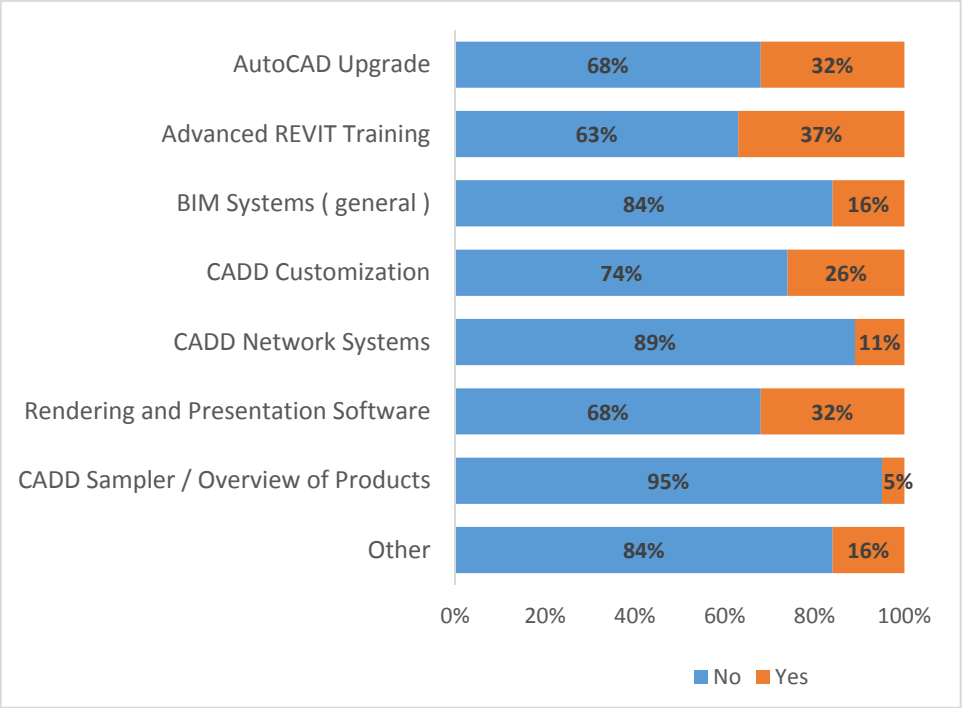
15. Additional Comments
No comments



16. What specific topics would be of most value or interest to you for Professional Upgrade (CE) courses in CADD Technologies? Please choose all that apply, and suggest any others of interest to you:	Frequency	
	No	Yes
AutoCAD Upgrade	13	6
Advanced REVIT Training	12	7
BIM Systems (general)	16	3
CADD Customization	14	5
CADD Network Systems	17	2
Rendering and Presentation Software	13	6
CADD Sampler / Overview of Products	18	1
Other	16	3

16. What specific topics would be of most value or interest to you for Professional Upgrade (CE) courses in CADD Technologies? Please choose all that apply, and suggest any others of interest to you:	Valid percent	
	No	Yes
AutoCAD Upgrade	68%	32%
Advanced REVIT Training	63%	37%
BIM Systems (general)	84%	16%
CADD Customization	74%	26%
CADD Network Systems	89%	11%
Rendering and Presentation Software	68%	32%
CADD Sampler / Overview of Products	95%	5%
Other	84%	16%

15. If you selected, please specify:
Civil 3D
Managing a drafting project
building science/technology
SolidWorks, Tekla



17. Please add any further comments that you think would help us in our future planning:
A high emphasis placed on presentation.
Students could benefit from developing good basic drafting skills.

	18. If you would like to receive information on the program please provide your name and information for preferred method of contact (one preferred method is sufficient): (This information will be separated from your survey responses so they will remain anonymous.)		
	Name:	**Company:**	**Phone:**
1	Cary Powell	ZE Power Engineering	6043048683
2	Nicole Hlus	Autopro Automation	604 4195216
3	Michael Snow	Fraser Health	7782277646
4	Rick	Hoegler	604-602-1175
5	Kelly Wightman	McElhanney Consulting Service	604-596-0391
6	Carmen Feldman	Whitewater West	
7	Richard Dyck	Apex Western Homes Ltd.	604-868-9264
8	Rick Ghag	Klohn Crippen Berger Ltd.	604-251-8480

18. If you would like to receive information on the program please provide your name and information for preferred method of contact (one preferred method is sufficient):
(This information will be separated from your survey responses so they will remain anonymous.)

Cary Powell
ZE Power Engineering
6043048683
cary.powell@ze.com
130-5920 No 2 Rd Richmond

Nicole Hlus
Autopro Automation
604 4195216
nicole.hlus@autopro.ca

Michael Snow
Fraser Health
7782277646
Michael.snow@fraserhealth.ca
#400 - 13450 102nd Ave, Surrey, BC V3T 0H1

Rick
Hoegler
604-602-1175
rhoegler@allnorth.com
V6E 4A6

Kelly Wightman
McElhanney Consulting Service
604-596-0391
Kwightman@mcelhanney
V3T5X3

Carmen Feldman
Whitewater West
604-868-9264
carmen.feldman@whitewaterwest.com

Richard Dyck
Apex Western Homes Ltd.
604-868-9264
designmng@apexhomes.ca
#104 - 1515 Barrow St. North Vancouver V7J 1B7

Rick Ghag
Klohn Crippen Berger Ltd.
604-251-8480
rghag@klohn.com
V5M 4X6

Computer Aided Design and Technologies (CADD)
Program Review (2015)

Survey – CADD Faculty

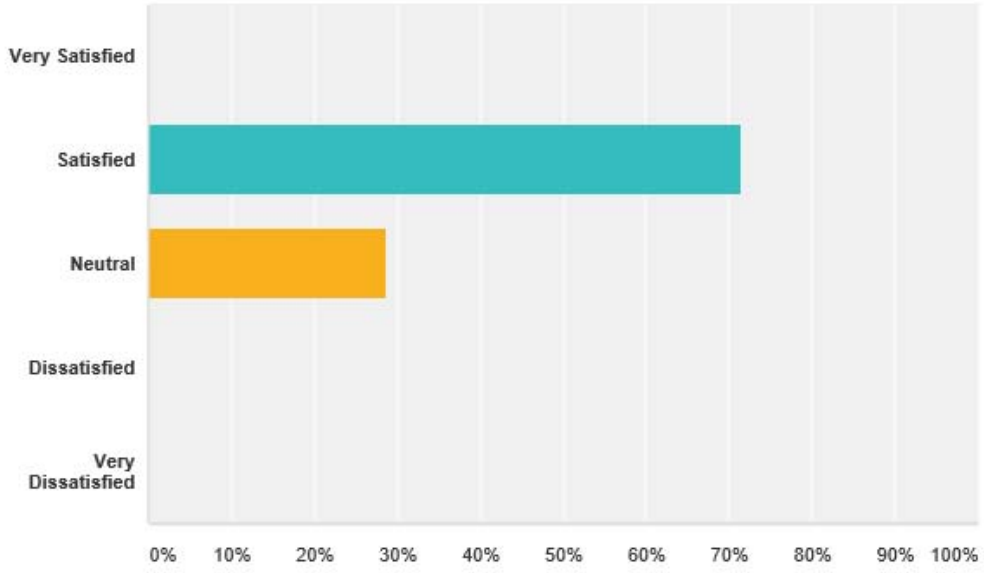
Conducted April 2015

Faculty Survey

Q1 Customize Export

How satisfied are you with Professional Development (PD) opportunities at KPU?

Answered: 7 Skipped: 0



Answer Choices	Responses	
Very Satisfied	0.00%	0
Satisfied	71.43%	5
Neutral	28.57%	2
Dissatisfied	0.00%	0
Very Dissatisfied	0.00%	0
Total		7

Comments (4)

Showing 4 responses

I have used funds a few times, and it seems pretty good.
4/14/2015 2:09 PM View respondent's answers

There are lots of PD opportunities, but they tend to be during the Summer semester, when I am teaching. I hope that faculty check out the free access to www.lynda.com through KPU
4/14/2015 1:41 PM View respondent's answers

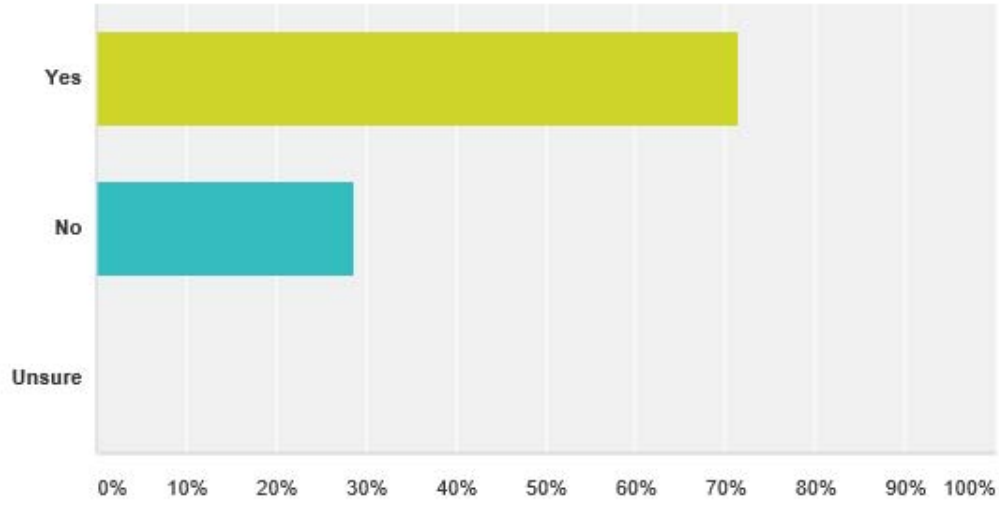
Would like to know more about what qualifies as PD
4/14/2015 1:39 PM View respondent's answers

There are several opportunities available at KPU, but they do not always fit in with my schedule. I hope more people at KPU take advantage of the free www.lynda.com training now available at KPU
4/14/2015 12:53 PM View respondent's answers

Q2 Customize Export

Choose One. I have participated in KPU funded PD opportunities other than Autocad Univ.

Answered: 7 Skipped: 0



Answer Choices	Responses	
Yes	71.43%	5
No	28.57%	2
Unsure	0.00%	0
Total		7

Comments (4)

Showing 4 responses

support for various conferences.
4/14/2015 3:24 PM View respondent's answers

I went to UBC a few years ago and completed a geothermal installation course. The KPU covered all my costs.
4/14/2015 2:09 PM View respondent's answers

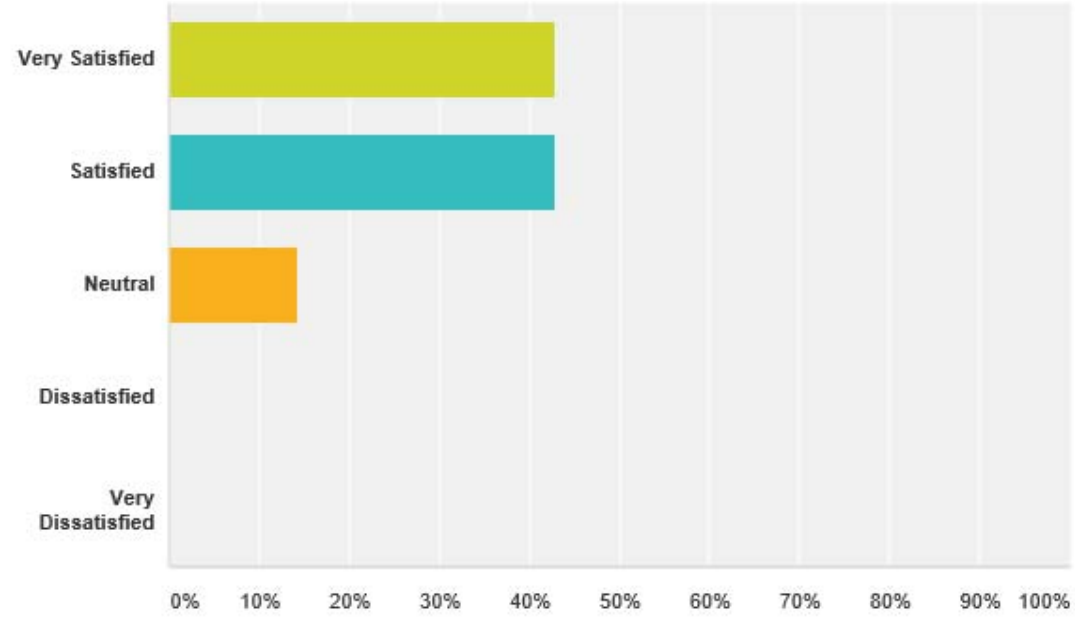
Last year I was able to get funded for a Project Management training course in Vancouver
4/14/2015 1:41 PM View respondent's answers

Last year I was funded for a course in Vancouver in Project Management
4/14/2015 12:53 PM View respondent's answers

Q3 Customize Export

How satisfied are you with how PD funds are managed and approved?

Answered: 7 Skipped: 0



Answer Choices	Responses	
Very Satisfied	42.86%	3
Satisfied	42.86%	3
Neutral	14.29%	1
Dissatisfied	0.00%	0
Very Dissatisfied	0.00%	0
Total		7

Comments (4)

Showing 4 responses

When asked, or requested, the process has been efficient and quick. Any questions have been answered promptly.
4/14/2015 3:24 PM View respondent's answers

Our Trades and Technology PD committee do a good job. For the most part I am able to get funding when I request it
4/14/2015 1:41 PM View respondent's answers

Tally is very approachable and helpful
4/14/2015 1:39 PM View respondent's answers

So far I have been able to get PD funds when requested.
4/14/2015 12:53 PM View respondent's answers

Q4 Expor

How would you like to see PD opportunities at KPU improved?

Answered: 5 Skipped: 2

Showing 5 responses

No comments at the moment.
4/14/2015 4:47 PM View respondent's answers

Many scheduled PD activities conflict with teaching schedules. Would be nice if more opportunities for workshops at our campus and directed to our needs.
4/14/2015 3:39 PM View respondent's answers

Ability to access more local and online conferences with support from PD funds. More target opportunities towards technology based services - more than a pointer to Lynda.com courses - as nice as that is to have, need more support to use existing technology (for example: Moodle) with help - not having to lead the way and find it on our own. Able to access PD funds and time to use them other than at short periods in one term (KPU supported PD activities. in May.)
4/14/2015 3:24 PM View respondent's answers

I do not feel that they need improvement. Of course more money would be nice, and then I would probably apply for more. But there is already available Ed Leave, the .6 PD fund, and KPU faculty can take up to 9 credits free at KPU each year. This provides lots of PD opportunities
4/14/2015 1:41 PM View respondent's answers

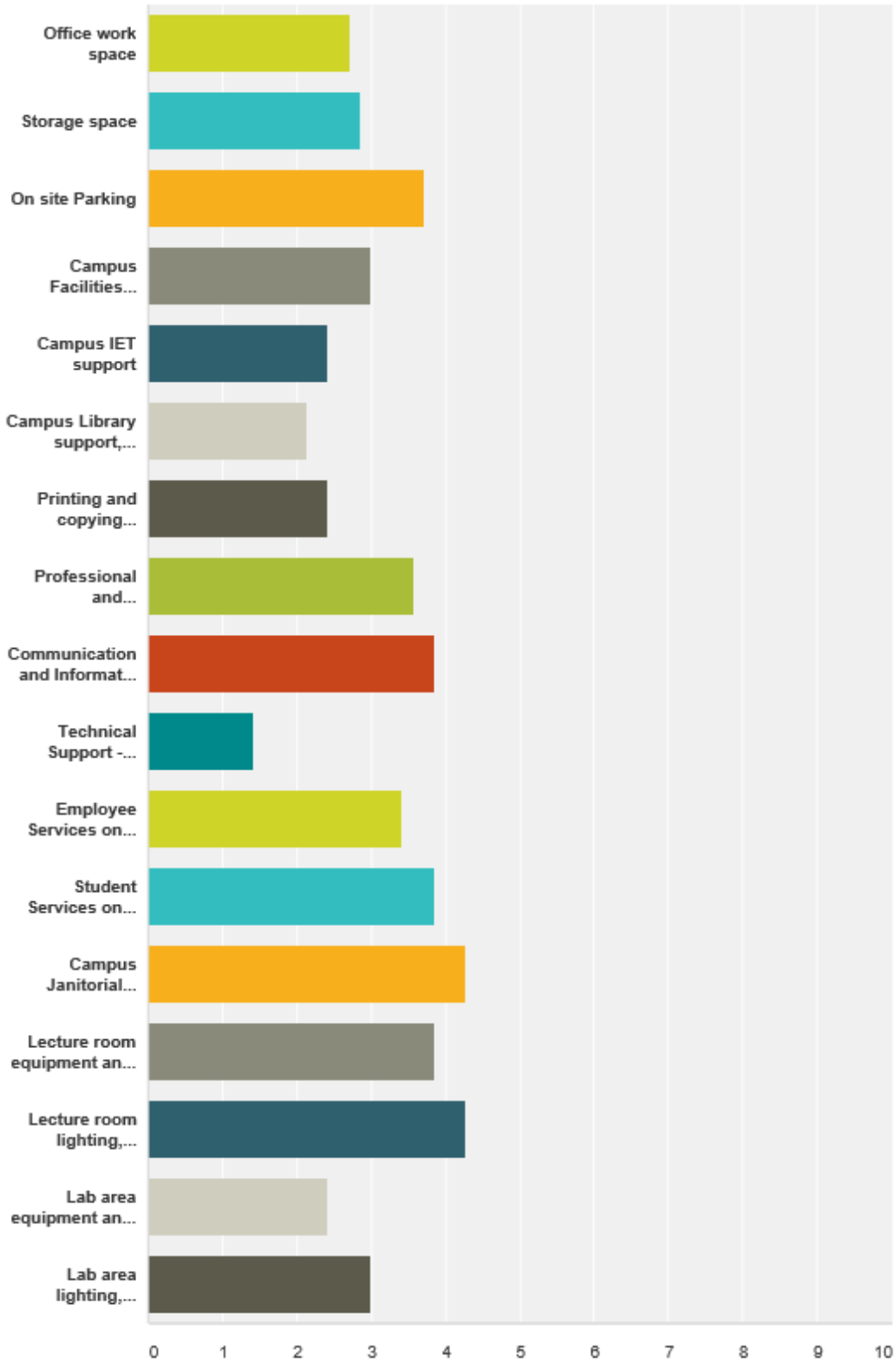
Not sure how funds are distributed but it would be nice to be able to access info on unused funds that remain available

Q5

Customize Export

How satisfied are you with the following workplace conditions?

Answered: 7 Skipped: 0



	Very Satisfied	Satisfied	Neutral	Dissatisfied	Very Dissatisfied	Total	Weighted Average
Office work space	0.00% 0	42.86% 3	42.86% 3	14.29% 1	0.00% 0	7	2.71
Storage space	0.00% 0	57.14% 4	14.29% 1	14.29% 1	14.29% 1	7	2.86
On site Parking	0.00% 0	28.57% 2	14.29% 1	14.29% 1	42.86% 3	7	3.71
Campus Facilities support	0.00% 0	28.57% 2	42.86% 3	28.57% 2	0.00% 0	7	3.00
Campus IET support	14.29% 1	42.86% 3	28.57% 2	14.29% 1	0.00% 0	7	2.43
Campus Library support, services and resources	0.00% 0	85.71% 6	14.29% 1	0.00% 0	0.00% 0	7	2.14
Printing and copying services	0.00% 0	71.43% 5	14.29% 1	14.29% 1	0.00% 0	7	2.43
Professional and Administrative support from the Dean's office	0.00% 0	0.00% 0	57.14% 4	28.57% 2	14.29% 1	7	3.57
Communication and Information from the Dean's office	0.00% 0	0.00% 0	42.86% 3	28.57% 2	28.57% 2	7	3.86
Technical Support - Program Assistant	57.14% 4	42.86% 3	0.00% 0	0.00% 0	0.00% 0	7	1.43
Employee Services on campus	0.00% 0	14.29% 1	42.86% 3	28.57% 2	14.29% 1	7	3.43
Student Services on campus	0.00% 0	0.00% 0	28.57% 2	57.14% 4	14.29% 1	7	3.86
Campus Janitorial services	0.00% 0	0.00% 0	14.29% 1	42.86% 3	42.86% 3	7	4.29
Lecture room equipment and furnishing	0.00% 0	14.29% 1	0.00% 0	71.43% 5	14.29% 1	7	3.86
Lecture room lighting, heating, cooling	0.00% 0	0.00% 0	0.00% 0	71.43% 5	28.57% 2	7	4.29
Lab area equipment and furnishing	0.00% 0	71.43% 5	14.29% 1	14.29% 1	0.00% 0	7	2.43
Lab area lighting, heating, cooling	0.00% 0	42.86% 3	14.29% 1	42.86% 3	0.00% 0	7	3.00

Comments (6)

Q6

Export

How would you like to see Workplace Conditions at KPU improved?

Answered: 6 Skipped: 1

Showing 6 responses

Would be nice if labs and lecture rooms were cleaned more than once per year. Standards of janitorial services from Facilities should be posted and supervised on occasion.

4/14/2015 3:39 PM View respondent's answers

This campus was promoted as a Technology leader and Power Smart & LEED example. In practice it is often over-heated in summer and cold in winter with little local chance to adjust conditions. Having more than garbage cans emptied 4 evenings a week (and interrupting classes) and to actually clean the floors, desks and other surfaces. IN the past we were told to just go buy a broom and do it ourselves - is this now part of our accountable time? Proper storage capability to keep required examples of student work (intended for future accreditation purposes) with out damage would be a minimal requirement. Storage for program related item and displays that are not in the labs or classrooms. Our students treat the areas as they see them being treated and respected by the institution - which is to say it is left a mess most of the time. It should not be up to the instructors and students to clean the hallways and floors.

4/14/2015 3:24 PM View respondent's answers

Upgrade all equipment and furnishings. Never hear anything back from the early alert, that we send for students that require extra help.

4/14/2015 2:09 PM View respondent's answers

More consistent support from Admissions... for example, we have had 3 different Admissions persons looking after our program in one year. It takes lot of work for each person to get up to speed on the CADD program and then they are replaced. More support from the Registrar's office for things like Course Substitution and Program Waivers More incentive to put Professional training in place. Some of the funds would have to come back to the CADD program

4/14/2015 1:41 PM View respondent's answers

The Dean's office needs to continue to work at understanding our program and students, failure to do so makes us feel out of place in this campus. In addition, properly funded budgets will help to improve workplace conditions, facilities and services.

4/14/2015 1:39 PM View respondent's answers

Need more comfortable chairs in the classrooms. I do not think that we should have to pay for parking at work. Student services, especially counseling, are not always available. It is hard to keep the temperature of the rooms controlled properly.

4/14/2015 12:53 PM View respondent's answers

Q7 Export

Please provide comment on any other relevant topic(s) related to your employment at KPU that is not covered in this survey.

Answered: 5 Skipped: 2

Showing 5 responses

Little to no credit given for committee work. Work additional to teaching (committee or dept work) is not equally distributed among dept. members.
4/14/2015 3:39 PM View respondent's answers

Support for our department needs in an academic and technology areas. Actual support and encouragement from management other than occasional tour stop to show off the 3D printer.
4/14/2015 3:24 PM View respondent's answers

Cleaning services are very poor. I have never worked in a place that was so dirty.
4/14/2015 2:09 PM View respondent's answers

It feels punitive to have to get permission from the Dean's office to buy so much as a pencil from the bookstore.
4/14/2015 1:41 PM View respondent's answers

I think that the upper levels of admin need to find some measure of harmony with the Vision they present and publish and the challenges that exist in how they intentionally or otherwise send workload & admin pressure/stress downhill to the teaching faculty, creating division instead of teamwork
4/14/2015 1:39 PM View respondent's answers

APPENDIX A

Surveys for Program Review

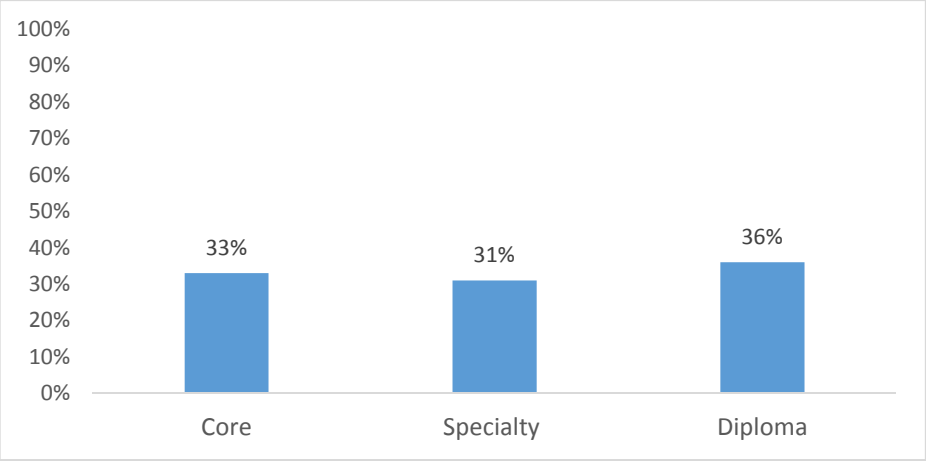
- Current Students
- Alumni
- Industry
- Faculty

Computer Aided Design and Technologies (CADD)
Program Review (2015)

Survey – Current Students

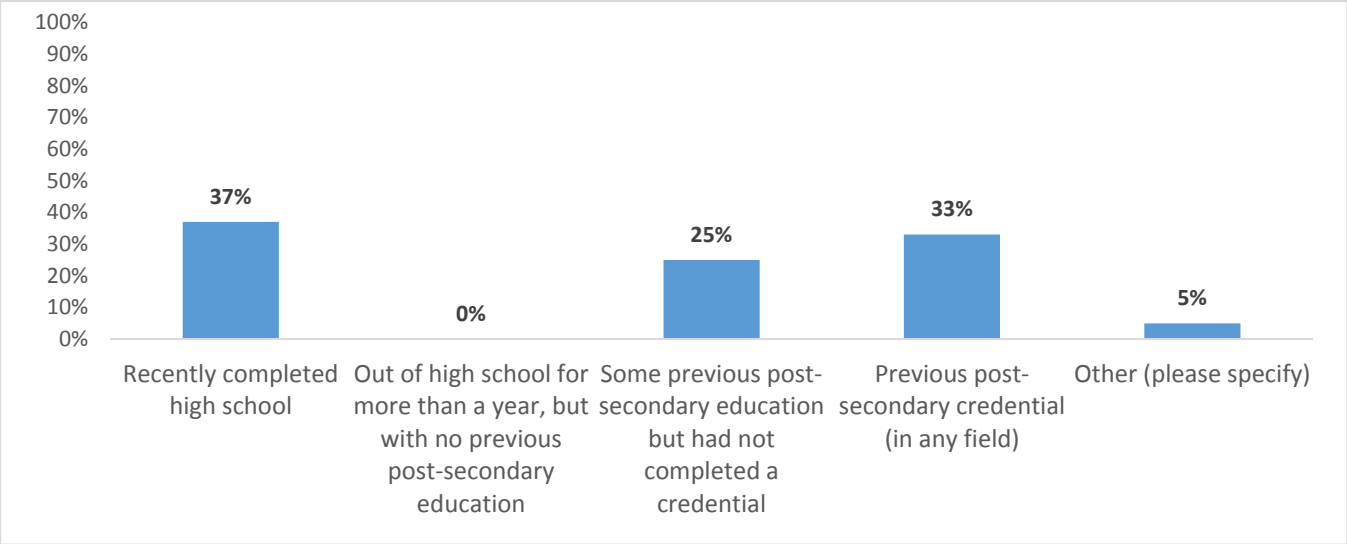
Conducted January 2015

1. In which level of the CADD program are you currently registered?	Frequency	Valid Percent
Core	14	33%
Specialty	13	31%
Diploma	15	36%
Total	42	100
Missing	2	
Total	44	

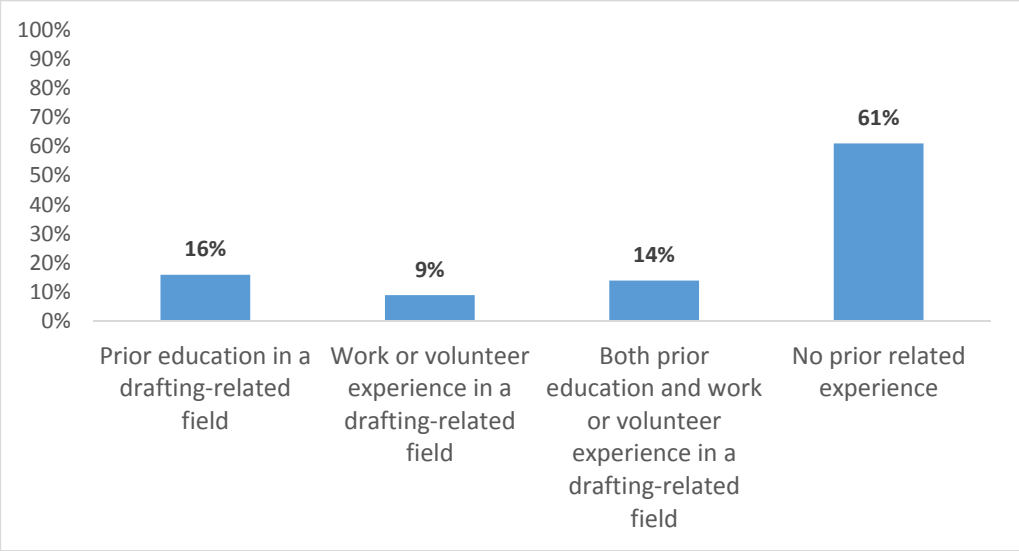


2. What best describes your educational background when you applied to the CADD program at KPU?	Frequency	Valid Percent
Recently completed high school	16	37%
Out of high school for more than a year, but with no previous post-secondary education	0	0%
Some previous post-secondary education but had not completed a credential	11	25%
Previous post-secondary credential (in any field)	14	33%
Other (please specify)	2	5%
Total	43	1
Missing	1	
Total	44	

2. If you selected other, please specify:
drafting 11

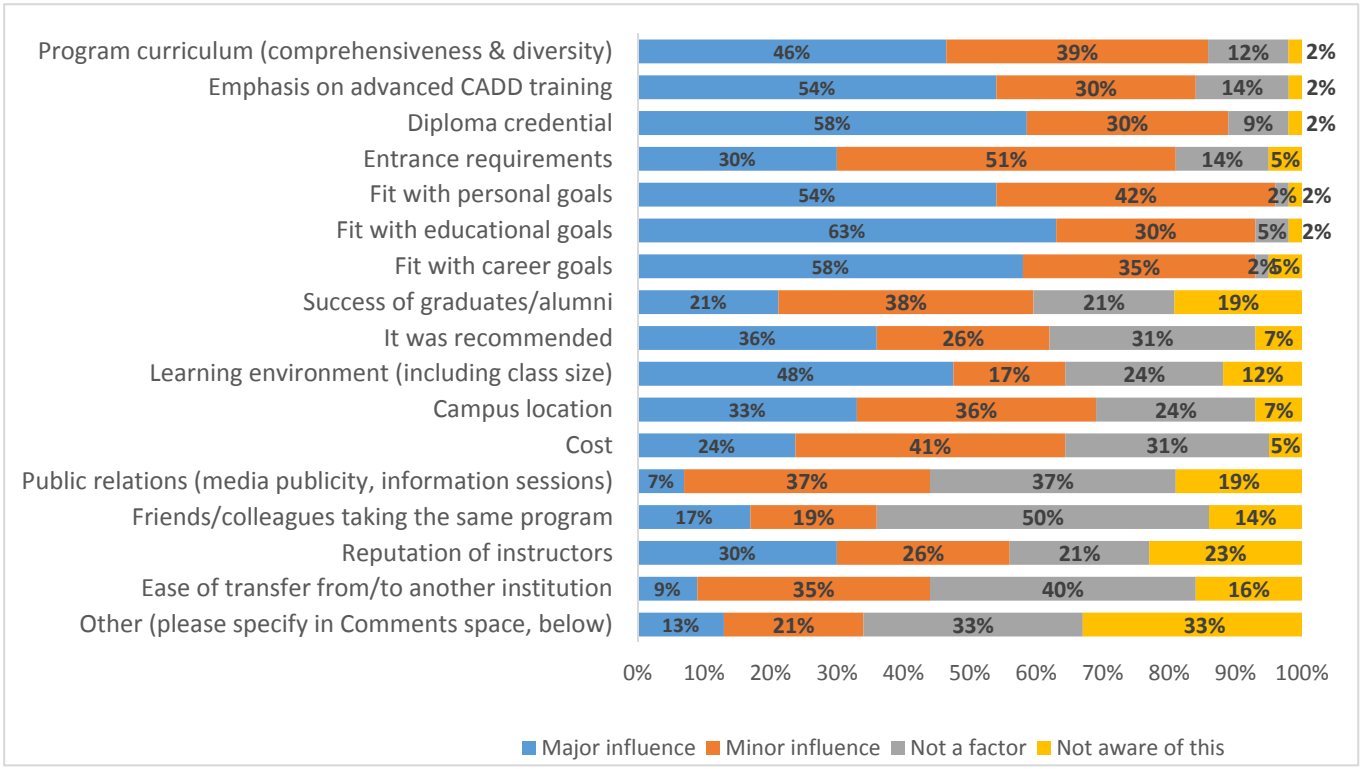


3. What prior experience in a drafting-related field did you have when you applied to the CADD program? For example: residential or commercial construction, trades work, etc.	Frequency	Valid Percent
Prior education in a drafting-related field	7	16%
Work or volunteer experience in a drafting-related field	4	9%
Both prior education and work or volunteer experience in a drafting-related field	6	14%
No prior related experience	26	61%
Total	43	1
Missing	1	
Total	44	



	Frequency			
4. To what extent did each of the following influence you to choose KPU for your CADD education?	Major influence	Minor influence	Not a factor	Not aware of this
Program curriculum (comprehensiveness & diversity)	19	16	5	1
Emphasis on advanced CADD training	23	13	6	1
Diploma credential	25	13	4	1
Entrance requirements	13	22	6	2
Fit with personal goals	23	18	1	1
Fit with educational goals	27	13	2	1
Fit with career goals	25	15	1	2
Success of graduates/alumni	9	16	9	8
It was recommended	15	11	13	3
Learning environment (including class size)	20	7	10	5
Campus location	14	15	10	3
Cost	10	17	13	2
Public relations (media publicity, information sessions)	3	16	16	8
Friends/colleagues taking the same program	7	8	21	6
Reputation of instructors	13	11	9	10
Ease of transfer from/to another institution	4	15	17	7
Other (please specify in Comments space, below)	3	5	8	8

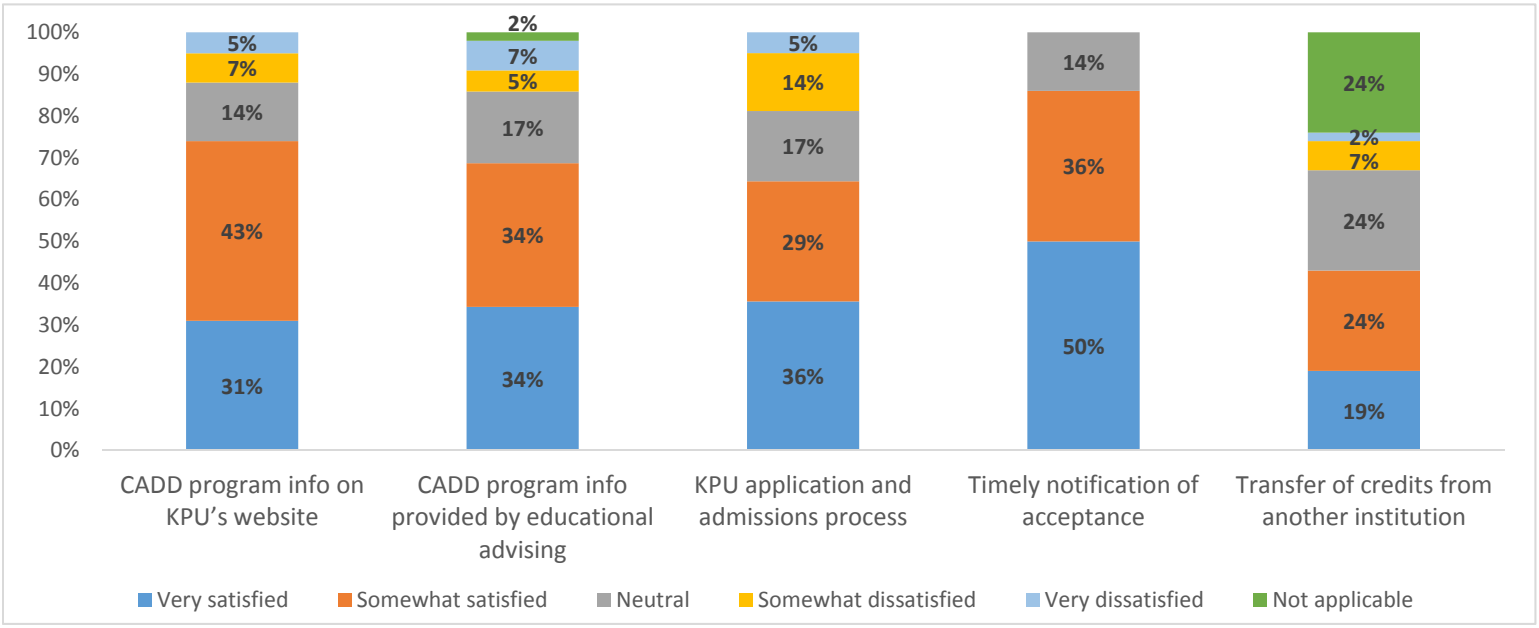
4. Comment Text
it was exactly what i was looking for and they had a district partnership program that i got into for core that made it free and it contributed to my high school graduation


Program curriculum (comprehensiveness & diversity)
46%
39%
12%
2%
Emphasis on advanced CADD training
54%
30%
14%
2%
Diploma credential
58%
30%
9%
2%
Entrance requirements
30%
51%
14%
5%
Fit with personal goals
54%
42%
2%
2%
Fit with educational goals
63%
30%
5%
2%
Fit with career goals
58%
35%
2%
5%
Success of graduates/alumni
21%
38%
21%
19%
It was recommended
36%
26%
31%
7%
Learning environment (including class size)
48%
17%
24%
12%
Campus location
33%
36%
24%
7%
Cost
24%
41%
31%
5%
Public relations (media publicity, information sessions)
7%
37%
37%
19%
Friends/colleagues taking the same program
17%
19%
50%
14%
Reputation of instructors
30%
26%
21%
23%
Ease of transfer from/to another institution
9%
35%
40%
16%
Other (please specify in Comments space, below)
13%
21%
33%
33%
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Major influence
Minor influence
Not a factor
Not aware of this

5. How satisfied have you been with each of the following:	Frequency					
	Very satisfied	Somewhat satisfied	Neutral	Somewhat dissatisfied	Very dissatisfied	Not applicable
CADD program info on KPU's website	13	18	6	3	2	0
CADD program info provided by educational advising	14	14	7	2	3	1
KPU application and admissions process	15	12	7	6	2	0
Timely notification of acceptance	21	15	6	0	0	0
Transfer of credits from another institution	8	10	10	3	1	10

5. How satisfied have you been with each of the following:	Per cent*					
	Very satisfied	Somewhat satisfied	Neutral	Somewhat dissatisfied	Very dissatisfied	Not applicable
CADD program info on KPU's website	31%	43%	14%	7%	5%	
CADD program info provided by educational advising	34%	34%	17%	5%	7%	2%
KPU application and admissions process	36%	29%	17%	14%	5%	
Timely notification of acceptance	50%	36%	14%			
Transfer of credits from another institution	19%	24%	24%	7%	2%	24%

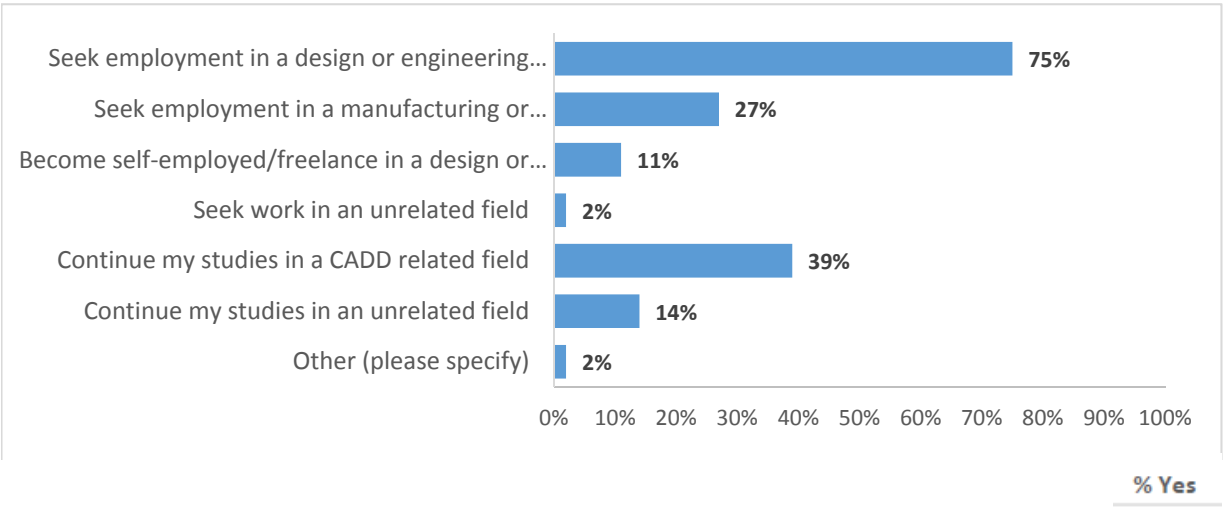
*Note: due to rounding, some totals will not equal 100%.



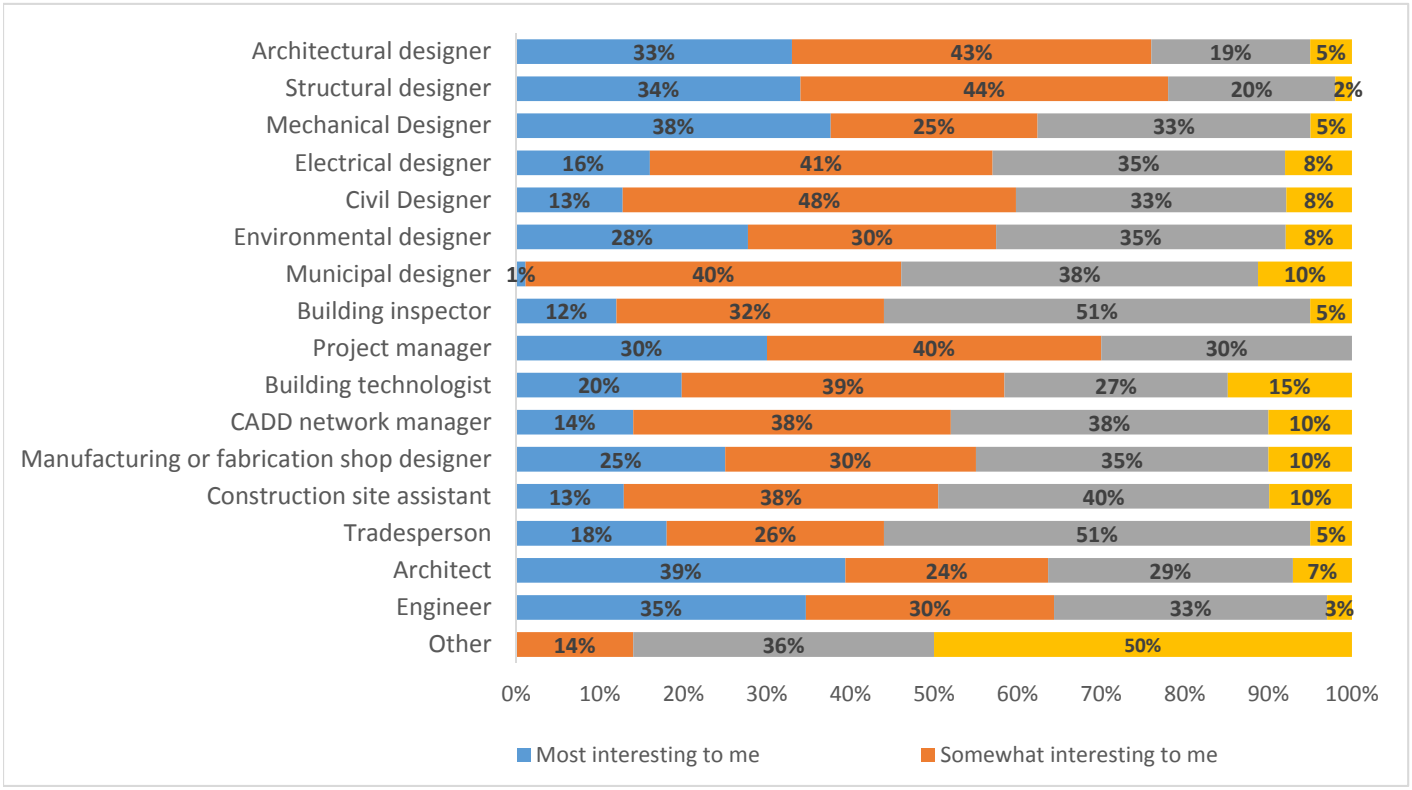
	Frequency	
6. What do you plan to do once you finish your CADD program? Please choose all that apply:	**Yes**	**No**
Seek employment in a design or engineering related position	33	11
Seek employment in a manufacturing or construction related position	12	32
Become self-employed/freelance in a design or engineering related position	5	39
Seek work in an unrelated field	1	43
Continue my studies in a CADD related field	17	27
Continue my studies in an unrelated field	6	38
Other (please specify)	1	43

	Per cent	
6. What do you plan to do once you finish your CADD program? Please choose all that apply:	**Yes**	**No**
Seek employment in a design or engineering related position	75%	25%
Seek employment in a manufacturing or construction related position	27%	73%
Become self-employed/freelance in a design or engineering related position	11%	89%
Seek work in an unrelated field	2%	98%
Continue my studies in a CADD related field	39%	61%
Continue my studies in an unrelated field	14%	86%
Other (please specify)	2%	98%

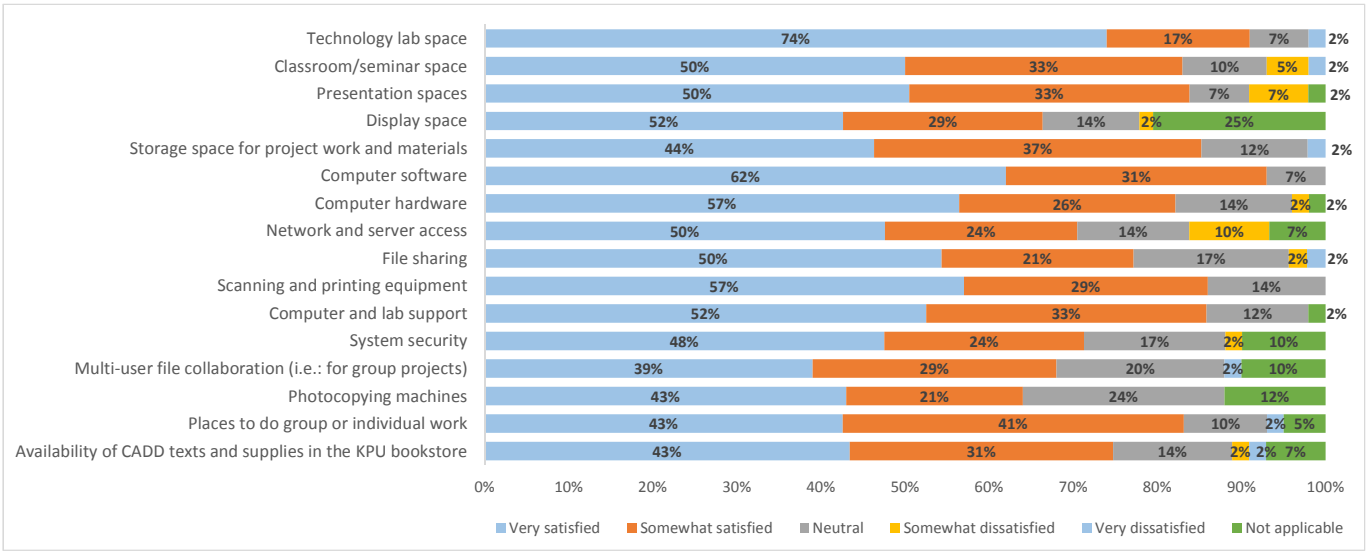
6. If you selected other, please specify:
No comments.



	Frequency			
7. Which particular job descriptions best fit your career interests?	Most interesting to me	Somewhat interesting to me	Least interesting to me	Not familiar with this job
Architectural designer	14	18	8	2
Structural designer	14	18	8	1
Mechanical Designer	15	10	13	2
Electrical designer	6	15	13	3
Civil Designer	5	19	13	3
Environmental designer	11	12	14	3
Municipal designer	5	16	15	4
Building inspector	5	13	21	2
Project manager	12	16	12	0
Building technologist	8	16	11	6
CADD network manager	6	16	16	4
Manufacturing or fabrication shop designer	10	12	14	4
Construction site assistant	5	15	16	4
Tradesperson	7	10	20	2
Architect	16	10	12	3
Engineer	14	12	13	1
Other	0	3	8	11


Architectural designer
33%
43%
19%
5%
Structural designer
34%
44%
20%
2%
Mechanical Designer
38%
25%
33%
5%
Electrical designer
16%
41%
35%
8%
Civil Designer
13%
48%
33%
8%
Environmental designer
28%
30%
35%
8%
Municipal designer
1%
40%
38%
10%
Building inspector
12%
32%
51%
5%
Project manager
30%
40%
30%
Building technologist
20%
39%
27%
15%
CADD network manager
14%
38%
38%
10%
Manufacturing or fabrication shop designer
25%
30%
35%
10%
Construction site assistant
13%
38%
40%
10%
Tradesperson
18%
26%
51%
5%
Architect
39%
24%
29%
7%
Engineer
35%
30%
33%
3%
Other
14%
36%
50%
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Most interesting to me
Somewhat interesting to me

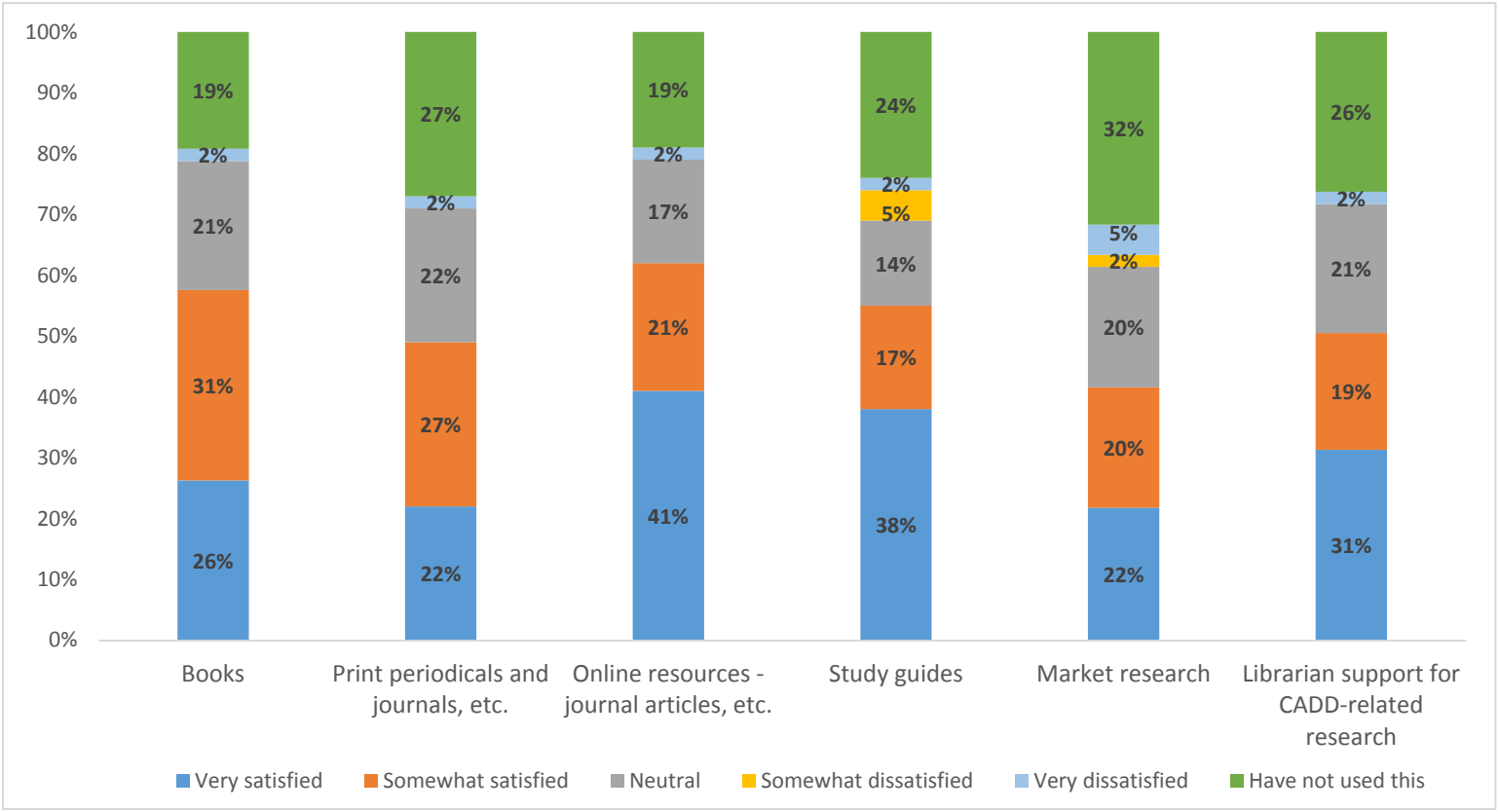
	Frequency					
8. Please indicate your level of satisfaction with the following resources as they apply to the specific needs of CADD students:	Very satisfied	Somewhat satisfied	Neutral	Somewhat dissatisfied	Very dissatisfied	Not applicable
Technology lab space	31	7	3	0	1	0
Classroom/seminar space	21	14	4	2	1	0
Presentation spaces	21	14	3	3	0	1
Display space	22	12	6	1	0	1
Storage space for project work and materials	18	15	5	0	1	2
Computer software	26	13	3	0	0	0
Computer hardware	24	11	6	1	0	0
Network and server access	21	10	6	4	0	1
File sharing	21	9	7	1	1	3
Scanning and printing equipment	24	12	6	0	0	0
Computer and lab support	22	14	5	0	0	1
System security	20	10	7	1	0	4
Multi-user file collaboration (i.e.: for group projects)	16	12	8	0	1	4
Photocopying machines	18	9	10	0	0	5
Places to do group or individual work	18	17	4	0	1	2
Availability of CADD texts and supplies in the KPU bookstore	18	13	6	1	1	3


Technology lab space
Classroom/seminar space
Presentation spaces
Display space
Storage space for project work and materials
Computer software
Computer hardware
Network and server access
File sharing
Scanning and printing equipment
Computer and lab support
System security
Multi-user file collaboration (i.e.: for group projects)
Photocopying machines
Places to do group or individual work
Availability of CADD texts and supplies in the KPU bookstore
74% 17% 7% 2%
50% 33% 10% 5% 2%
50% 33% 7% 7% 2%
52% 29% 14% 2% 25%
44% 37% 12% 2%
62% 31% 7%
57% 26% 14% 2% 2%
50% 24% 14% 10% 7%
50% 21% 17% 2% 2%
57% 29% 14%
52% 33% 12% 2%
48% 24% 17% 2% 10%
39% 29% 20% 2% 10%
43% 21% 24% 12%
43% 41% 10% 2% 5%
43% 31% 14% 2% 2% 7%
0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%
Very satisfied
Somewhat satisfied
Neutral
Somewhat dissatisfied
Very dissatisfied
Not applicable

9. Please indicate your level of satisfaction with the following Library resources, thinking of those specifically relating to CADD:	Frequency					
	Very satisfied	Somewhat satisfied	Neutral	Somewhat dissatisfied	Very dissatisfied	Have not used this
Books	11	13	9	0	1	8
Print periodicals and journals, etc.	9	11	9	0	1	11
Online resources - journal articles, etc.	17	9	7	0	1	8
Study guides	16	7	6	2	1	10
Market research	9	8	8	1	2	13
Librarian support for CADD-related research	13	8	9	0	1	11

9. Please indicate your level of satisfaction with the following Library resources, thinking of those specifically relating to CADD:	Per cent*					
	Very satisfied	Somewhat satisfied	Neutral	Somewhat dissatisfied	Very dissatisfied	Have not used this
Books	26%	31%	21%		2%	19%
Print periodicals and journals, etc.	22%	27%	22%		2%	27%
Online resources - journal articles, etc.	41%	21%	17%		2%	19%
Study guides	38%	17%	14%	5%	2%	24%
Market research	22%	20%	20%	2%	5%	32%
Librarian support for CADD-related research	31%	19%	21%		2%	26%

*Note: due to rounding, some totals will not equal 100%.

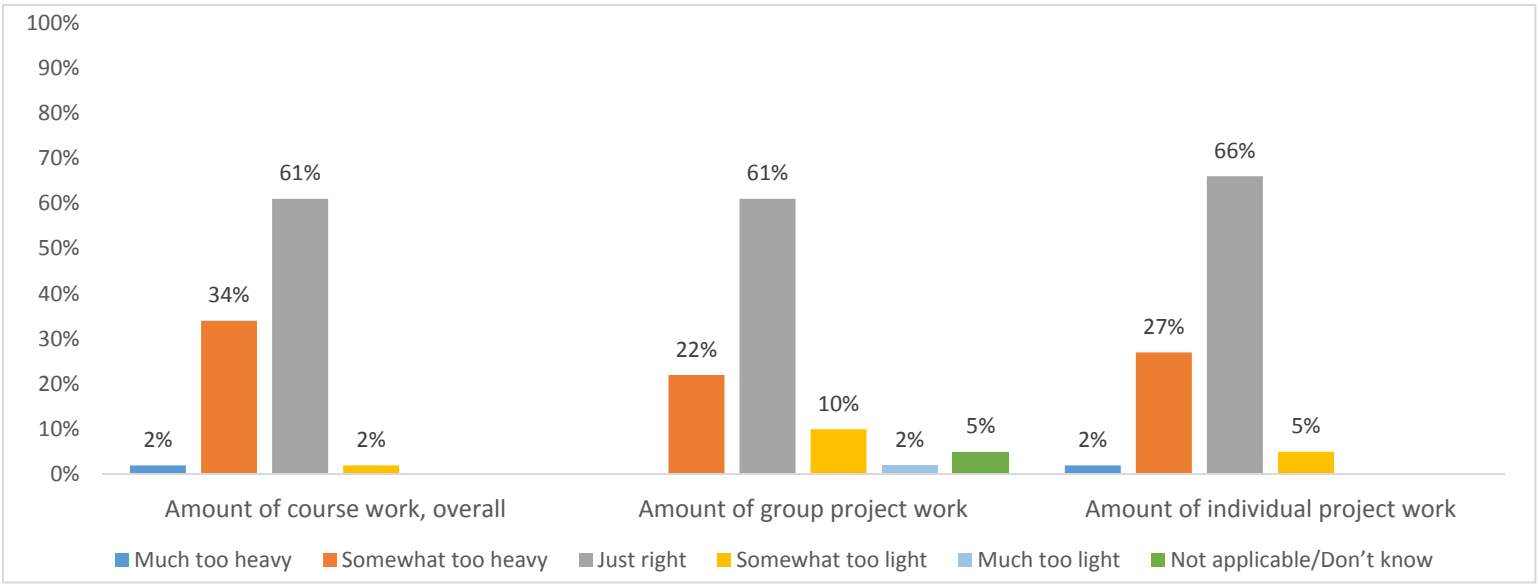


10. Any further comments on program resources?
Hope the internet speed can go faster! We often wait for it while looking a blank window...
Good job on providing what's best. Keep it up!

11. In your opinion, is the workload for these aspects of the CADD program…	Frequency					
	Much too heavy	Somewhat too heavy	Just right	Somewhat too light	Much too light	Not applicable/ Don't know
Amount of course work, overall	1	14	25	1	0	0
Amount of group project work	0	9	25	4	1	2
Amount of individual project work	1	11	27	2	0	0

11. In your opinion, is the workload for these aspects of the CADD program…	Per cent*					
	Much too heavy	Somewhat too heavy	Just right	Somewhat too light	Much too light	Not applicable/ Don't know
Amount of course work, overall	2%	34%	61%	2%		
Amount of group project work		22%	61%	10%	2%	5%
Amount of individual project work	2%	27%	66%	5%		

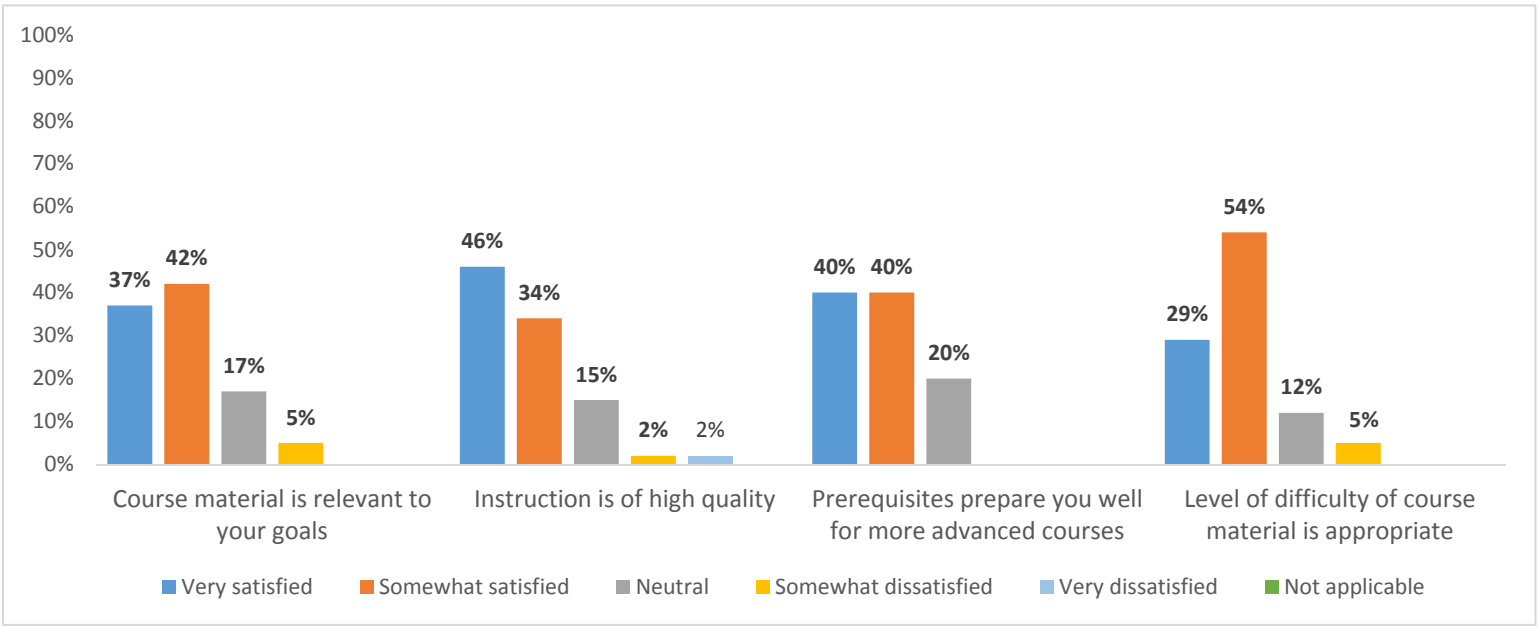
*Note: due to rounding, some totals will not equal 100%.



12. Thinking of the CADD program as a whole, how satisfied are you that:	Frequency					
	Very satisfied	Somewhat satisfied	Neutral	Somewhat dissatisfied	Very dissatisfied	Not applicable
Course material is relevant to your goals	15	17	7	2	0	0
Instruction is of high quality	19	14	6	1	1	0
Prerequisites prepare you well for more advanced courses	16	16	8	0	0	
Level of difficulty of course material is appropriate	12	22	5	2	0	0

12. Thinking of the CADD program as a whole, how satisfied are you that:	Per cent*					
	Very satisfied	Somewhat satisfied	Neutral	Somewhat dissatisfied	Very dissatisfied	Not applicable
Course material is relevant to your goals	37%	42%	17%	5%		
Instruction is of high quality	46%	34%	15%	2%	2%	
Prerequisites prepare you well for more advanced courses	40%	40%	20%			
Level of difficulty of course material is appropriate	29%	54%	12%	5%		

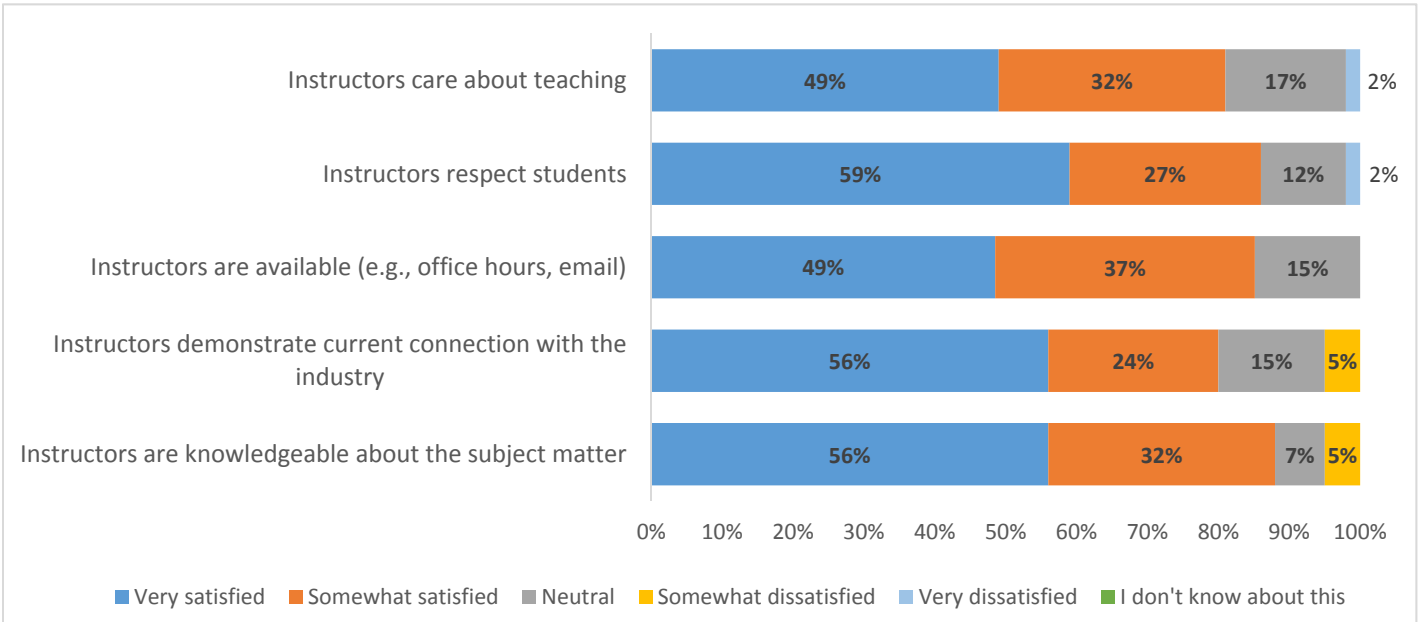
*Note: due to rounding, some totals will not equal 100%.



	Frequency					
13. Thinking of the CADD program as a whole, how satisfied are you that…	Very satisfied	Somewhat satisfied	Neutral	Somewhat dissatisfied	Very dissatisfied	I don't know about this
Instructors are knowledgeable about the subject matter	23	13	3	2	0	0
Instructors demonstrate current connection with the industry	23	10	6	2	0	0
Instructors are available (e.g., office hours, email)	20	15	6	0	0	0
Instructors respect students	24	11	5	0	1	0
Instructors care about teaching	20	13	7	0	1	0

	Per cent*					
13. Thinking of the CADD program as a whole, how satisfied are you that…	Very satisfied	Somewhat satisfied	Neutral	Somewhat dissatisfied	Very dissatisfied	I don't know about this
Instructors are knowledgeable about the subject matter	56%	32%	7%	5%		
Instructors demonstrate current connection with the industry	56%	24%	15%	5%		
Instructors are available (e.g., office hours, email)	49%	37%	15%			
Instructors respect students	59%	27%	12%		2%	
Instructors care about teaching	49%	32%	17%		2%	

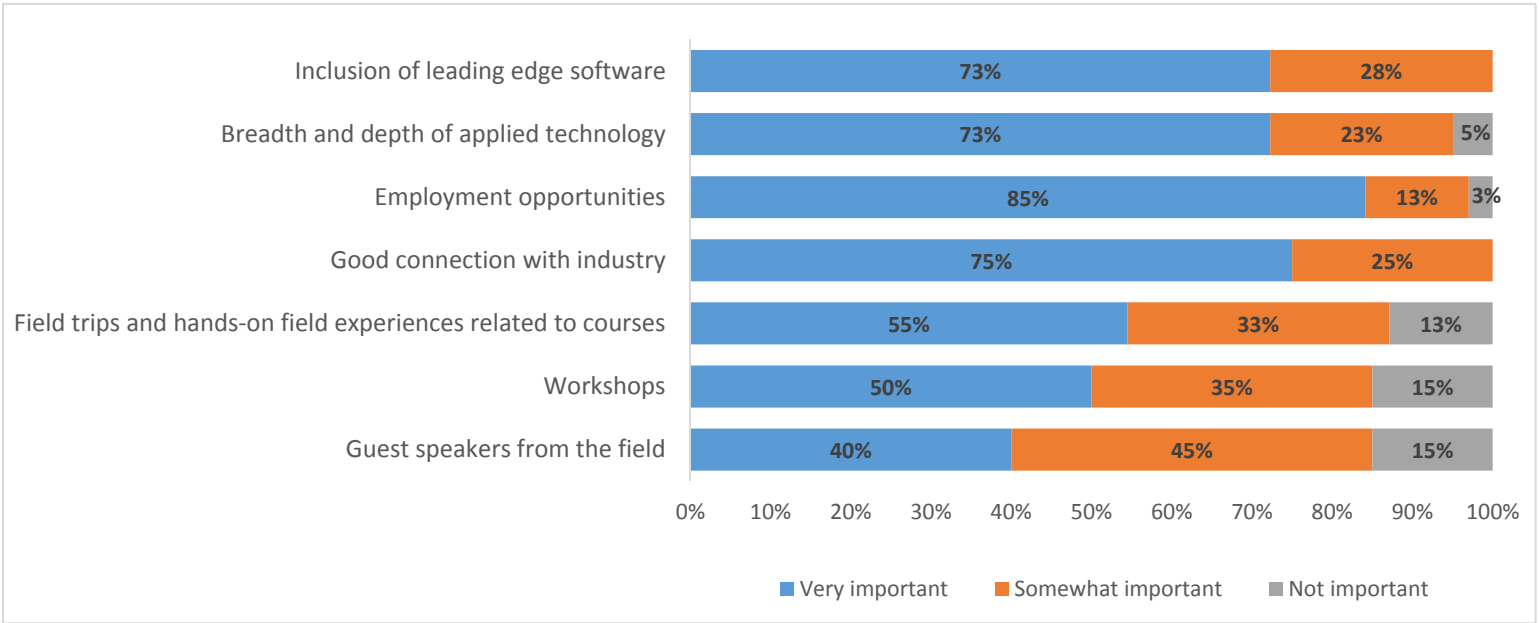
*Note: due to rounding, some totals will not equal 100%.



14. How important are each of the following CADD program features to you:	Frequency		
	Very important	Somewhat important	Not important
Guest speakers from the field	16	18	6
Workshops	20	14	6
Field trips and hands-on field experiences related to courses	22	13	5
Good connection with industry	30	10	0
Employment opportunities	34	5	1
Breadth and depth of applied technology	29	9	2
Inclusion of leading edge software	29	11	0

14. How important are each of the following CADD program features to you:	Per cent*		
	Very important	Somewhat important	Not important
Guest speakers from the field	40%	45%	15%
Workshops	50%	35%	15%
Field trips and hands-on field experiences related to courses	55%	33%	13%
Good connection with industry	75%	25%	
Employment opportunities	85%	13%	3%
Breadth and depth of applied technology	73%	23%	5%
Inclusion of leading edge software	73%	28%	

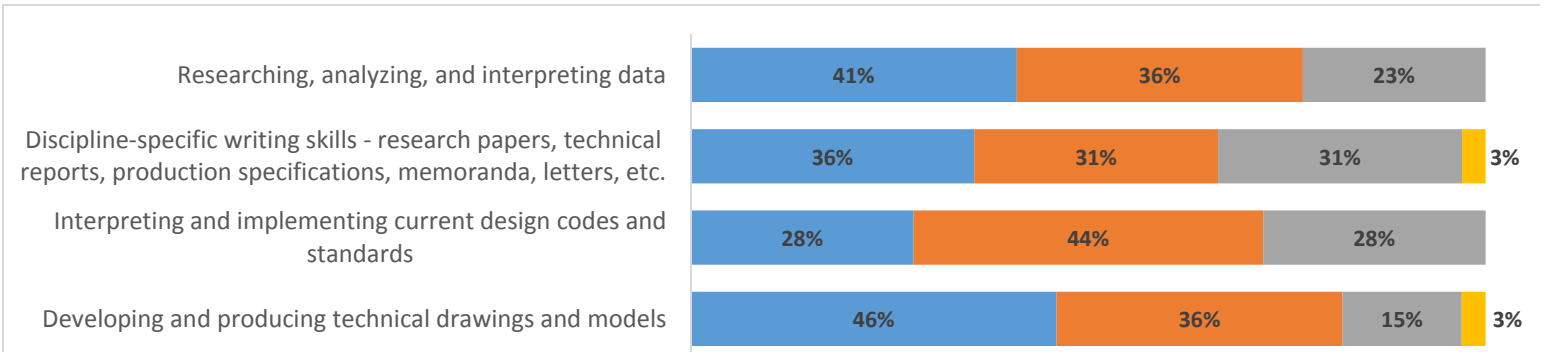
*Note: due to rounding, some totals will not equal 100%.

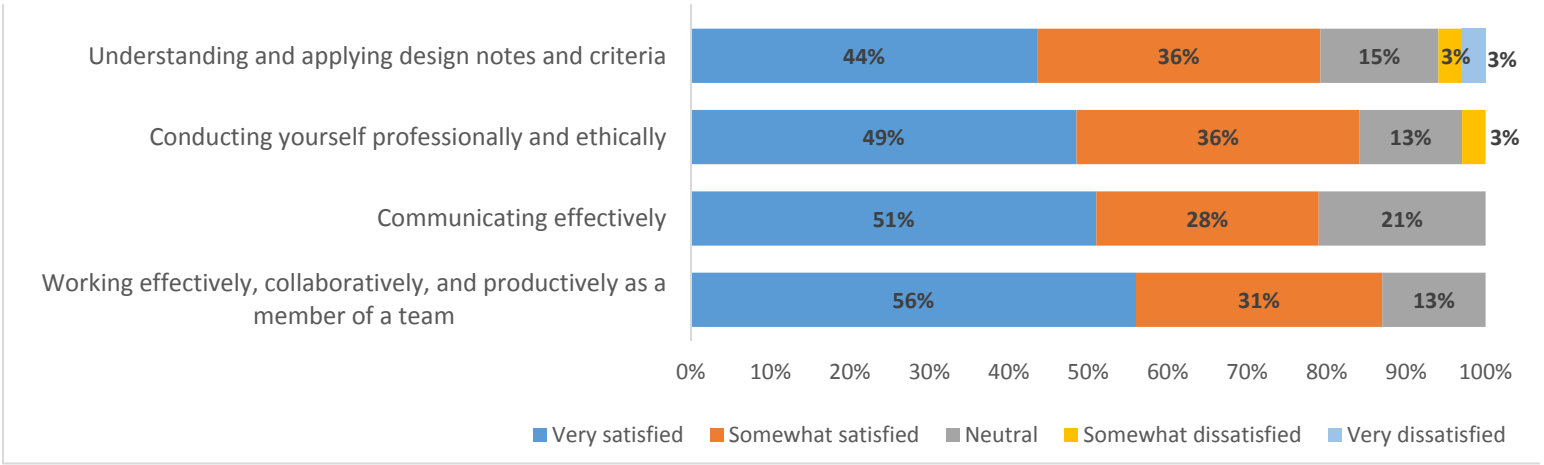


15. How satisfied are you with your opportunities to develop the following industry-specific skills in the CADD program:	Frequency				
	Very satisfied	Somewhat satisfied	Neutral	Somewhat dissatisfied	Very dissatisfied
Researching, analyzing, and interpreting data	16	14	9	0	0
Discipline-specific writing skills - research papers, technical reports, production specifications, memoranda, letters, etc.	14	12	12	1	0
Interpreting and implementing current design codes and standards	11	17	11	0	0
Developing and producing technical drawings and models	18	14	6	1	0
Understanding and applying design notes and criteria	17	14	6	1	1
Conducting yourself professionally and ethically	19	14	5	1	0
Communicating effectively	20	11	8	0	0
Working effectively, collaboratively, and productively as	22	12	5	0	0

15. How satisfied are you with your opportunities to develop the following industry-specific skills in the CADD program:	Per cent*				
	Very satisfied	Somewhat satisfied	Neutral	Somewhat dissatisfied	Very dissatisfied
Researching, analyzing, and interpreting data	41%	36%	23%		
Discipline-specific writing skills - research papers, technical reports, production specifications, memoranda, letters, etc.	36%	31%	31%	3%	
Interpreting and implementing current design codes and standards	28%	44%	28%		
Developing and producing technical drawings and models	46%	36%	15%	3%	
Understanding and applying design notes and criteria	44%	36%	15%	3%	3%
Conducting yourself professionally and ethically	49%	36%	13%	3%	
Communicating effectively	51%	28%	21%		
Working effectively, collaboratively, and productively as a member of a team	56%	31%	13%		

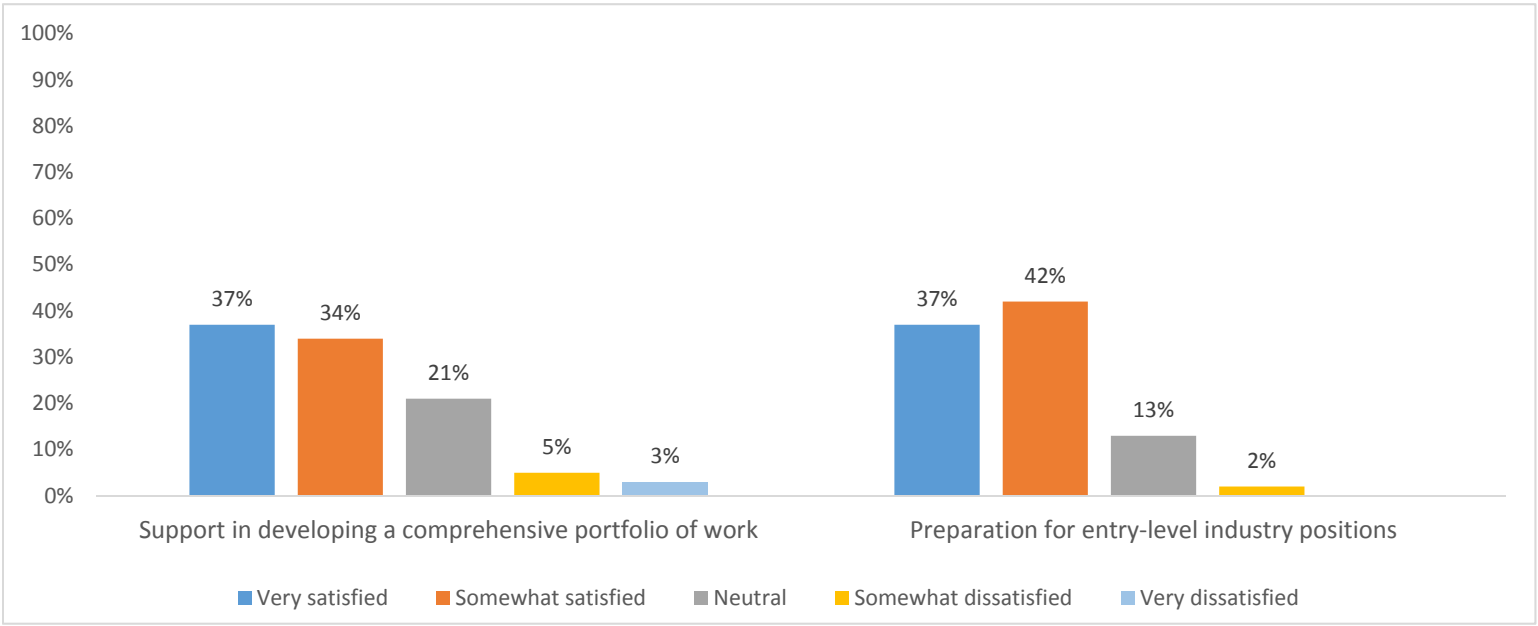
*Note: due to rounding, some totals will not equal 100%.




Understanding and applying design notes and criteria
Conducting yourself professionally and ethically
Communicating effectively
Working effectively, collaboratively, and productively as a member of a team
44%
36%
15%
3%
3%
49%
36%
13%
3%
51%
28%
21%
56%
31%
13%
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Very satisfied
Somewhat satisfied
Neutral
Somewhat dissatisfied
Very dissatisfied

16. How satisfied are you that the CADD program provides you with adequate…	Frequency				
	Very satisfied	Somewhat satisfied	Neutral	Somewhat dissatisfied	Very dissatisfied
Support in developing a comprehensive portfolio of work	14	13	8	2	1
Preparation for entry-level industry positions	14	16	5	3	0

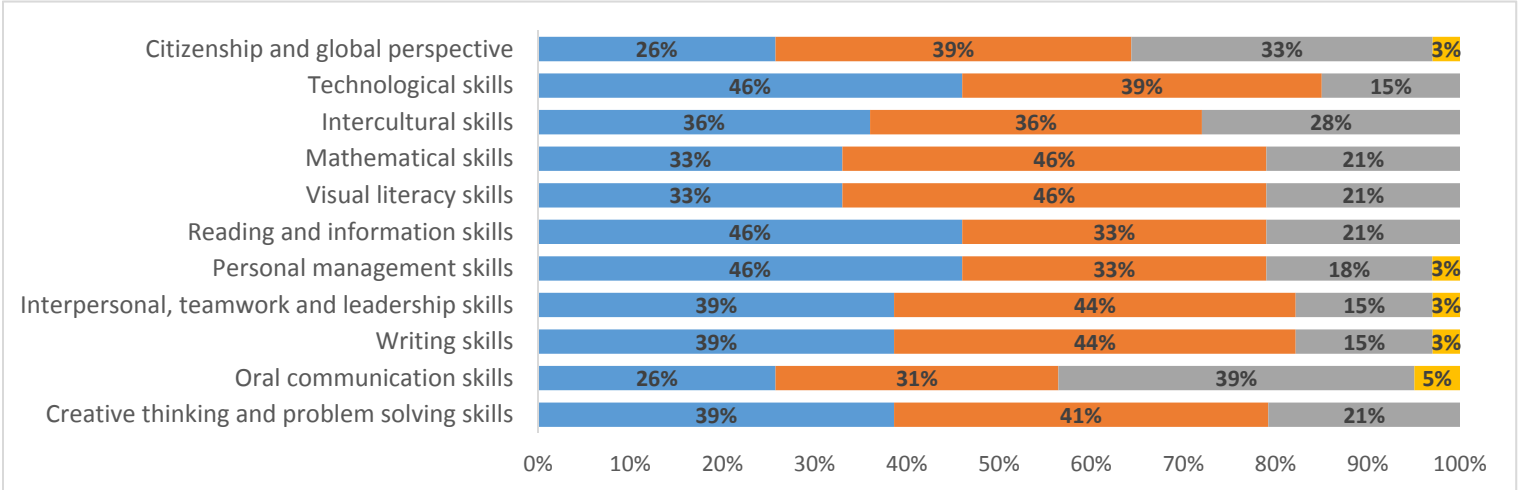
16. How satisfied are you that the CADD program provides you with adequate…	Per cent				
	Very satisfied	Somewhat satisfied	Neutral	Somewhat dissatisfied	Very dissatisfied
Support in developing a comprehensive portfolio of work	37%	34%	21%	5%	3%
Preparation for entry-level industry positions	37%	42%	13%	2%	

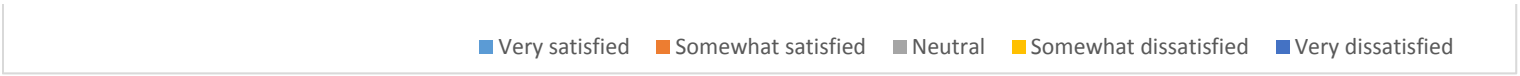


17. How satisfied are you with your opportunities to develop the following essential skills in the CADD program:	Frequency				
	Very satisfied	Somewhat satisfied	Neutral	Somewhat dissatisfied	Very dissatisfied
Creative thinking and problem solving skills	19	15	5	0	0
Oral communication skills	15	16	8	0	0
Writing skills	10	12	15	2	0
Interpersonal, teamwork and leadership skills	15	17	6	1	0
Personal management skills	18	14	6	0	1
Reading and information skills	18	13	7	1	0
Visual literacy skills	18	13	8	0	0
Mathematical skills	13	18	8	0	0
Intercultural skills	14	14	11	0	0
Technological skills	18	15	6	0	0
Citizenship and global perspective	10	15	13	1	0

17. How satisfied are you with your opportunities to develop the following essential skills in the CADD program:	Per cent*				
	Very satisfied	Somewhat satisfied	Neutral	Somewhat dissatisfied	Very dissatisfied
Creative thinking and problem solving skills	39%	41%	21%		
Oral communication skills	26%	31%	39%	5%	
Writing skills	39%	44%	15%	3%	
Interpersonal, teamwork and leadership skills	39%	44%	15%	3%	
Personal management skills	46%	33%	18%	3%	
Reading and information skills	46%	33%	21%		
Visual literacy skills	33%	46%	21%		
Mathematical skills	33%	46%	21%		
Intercultural skills	36%	36%	28%		
Technological skills	46%	39%	15%		
Citizenship and global perspective	26%	39%	33%	3%	

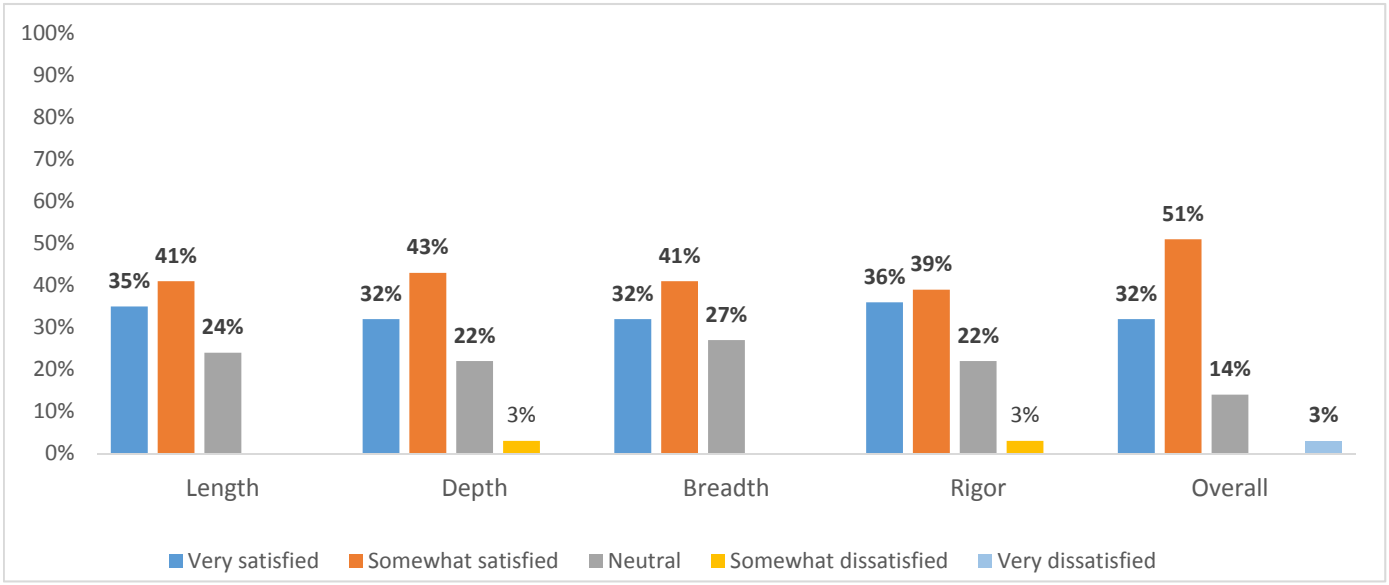
*Note: due to rounding, some totals will not equal 100%.




Very satisfied
Somewhat satisfied
Neutral
Somewhat dissatisfied
Very dissatisfied

18. How satisfied are you with the CADD program, in terms of:	Frequency				
	Very satisfied	Somewhat satisfied	Neutral	Somewhat dissatisfied	Very dissatisfied
Length	13	15	9	0	0
Depth	12	16	8	1	0
Breadth	12	15	10	0	0
Rigor	13	14	8	1	0
Overall	12	19	5	0	1

18. How satisfied are you with the CADD program, in terms of:	Per cent				
	Very satisfied	Somewhat satisfied	Neutral	Somewhat dissatisfied	Very dissatisfied
Length	35%	41%	24%		
Depth	32%	43%	22%	3%	
Breadth	32%	41%	27%		
Rigor	36%	39%	22%	3%	
Overall	32%	51%	14%		3%



19. What aspect(s) of the CADD program work particularly well?
The Instructor
software using
In fact that the class size is very small, therefore the instructor is always available for students when some problems appear.
I enjoy hands-on work and working with Autocad.
The program does a very good job for preparing students for an office environment by encouraging communication between students, and providing assistance with reading design notes.
Excellent instructors
software
Expanding technological skills and specialties are well focused.
I enjoyed most of the topics covered by the course and feel like it gave a good introduction.
I think so far, the program is showing that it is a well rounded one. My main compliment would be that Christina Heinrick is extremely helpful and seems to really care about the students educational experience.

20. What aspect(s) of the CADD program would benefit from change, and how?
More hands on and bringing some one who is related to the field industry.
1150 and 1100 could be merged as one course, too much overlap
hardware upgrade, more campus location
Less focus on documentation and more focus on the technical aspects.
The CADD program requires an individual to be in on open lab days such as Fridays so that students still have someone available to answer questions.
More available courses for the 2nd year. In general, more creative challenge.
More time spent on skills that would be of use in the workplace. Some more time with 3D software.
I think if there is a teacher that isn't very familiar with the course material, it would benefit them and the class if they reviewed their material in advance of class time.
field trips - going out into the field.

21. Can you recommend any other skills that could be added to improve the CADD program?
Depends on the Instructor
some arts courses
Deeper into the structural, architectural, and mechanical fields (maybe another semester?)
hands-on trades skill
3rd dimensional drafting is becoming more important.
I think that there should be more depth on business writing, and e-mail communication as it is a very critical part of working in an office today.
Creative skills; competitive skills.
I personally think that knowledge of Photoshop can help with the more artistic side of CAD.

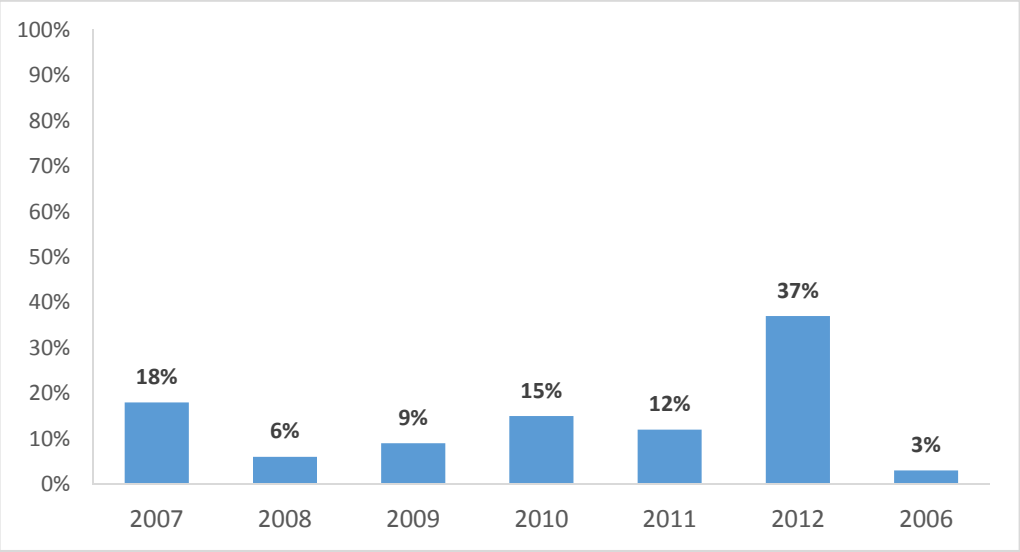
22. Any other comments that would help us understand your experience in the CADD program?
need more real project examples
a good program overall
it will be a great idea if our school makes some connection with the industry/firms/other field related employers, where we can go and train ourselves while we are in program or may be have a co-op kind of opportunity . 2 years off diploma and another 6 months or so for the co-op.
Going well so far, it would be great if there was a way to get more connected with people in the industry (I am aware this may take place further into the program).

Computer Aided Design and Technologies (CADD)
Program Review (2015)

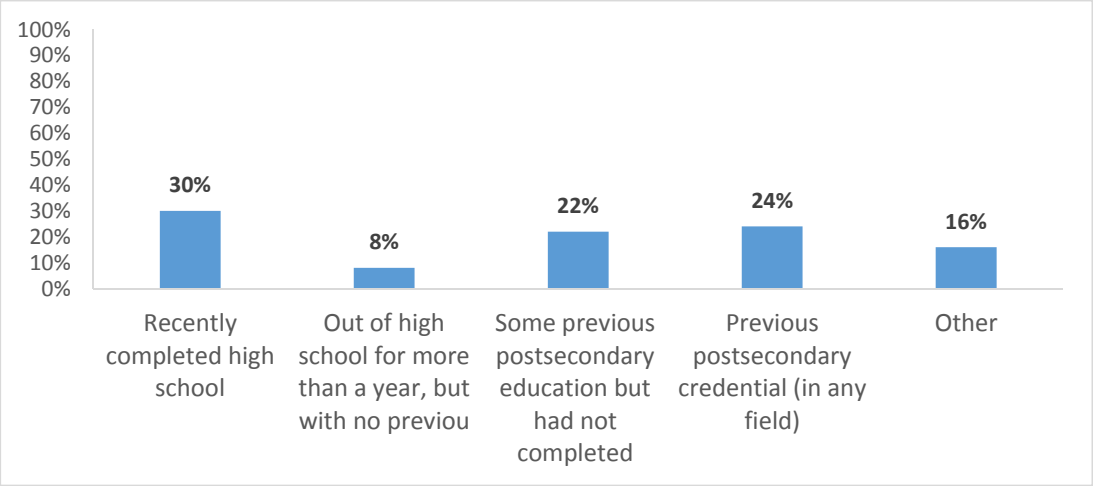
Survey – CADD Alumni

Conducted November 2014

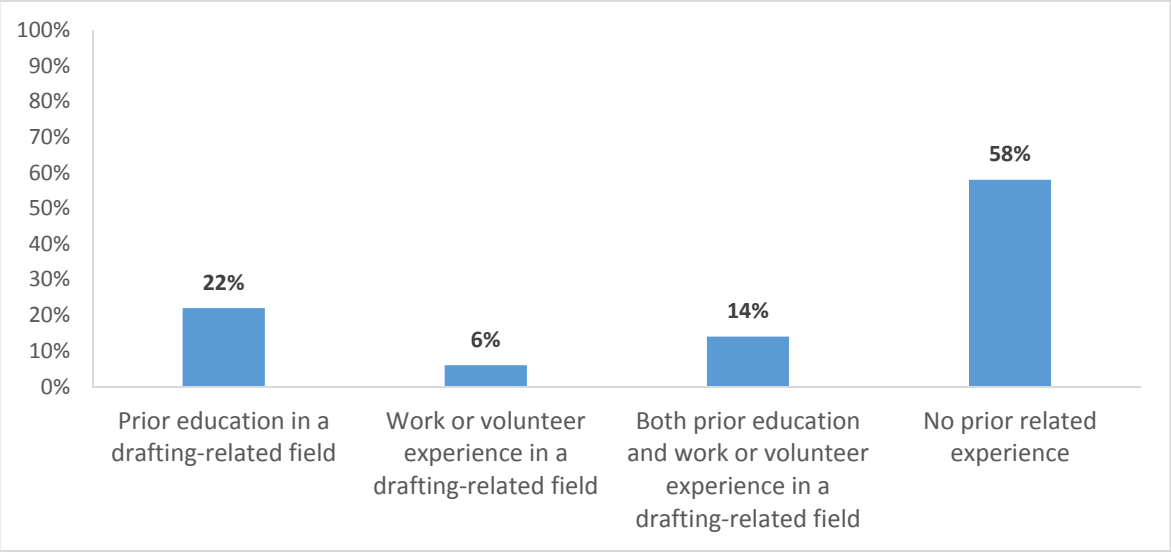
1. When did you enter the KPU CADD program?	Frequency	Valid Percent
2007	6	18%
2008	2	6%
2009	3	9%
2010	5	15%
2011	4	12%
2012	12	37%
2006	1	3%
Total	33	100%
Missing	5	
Total	38	



2. What best describes your educational background when you applied to the CADD program at KPU?	Frequency	Valid Percent
Recently completed high school	11	30%
Out of high school for more than a year, but with no previou	3	8%
Some previous postsecondary education but had not completed	8	22%
Previous postsecondary credential (in any field)	9	24%
Other	6	16%
Total	37	100%
Missing	1	
Total	38	

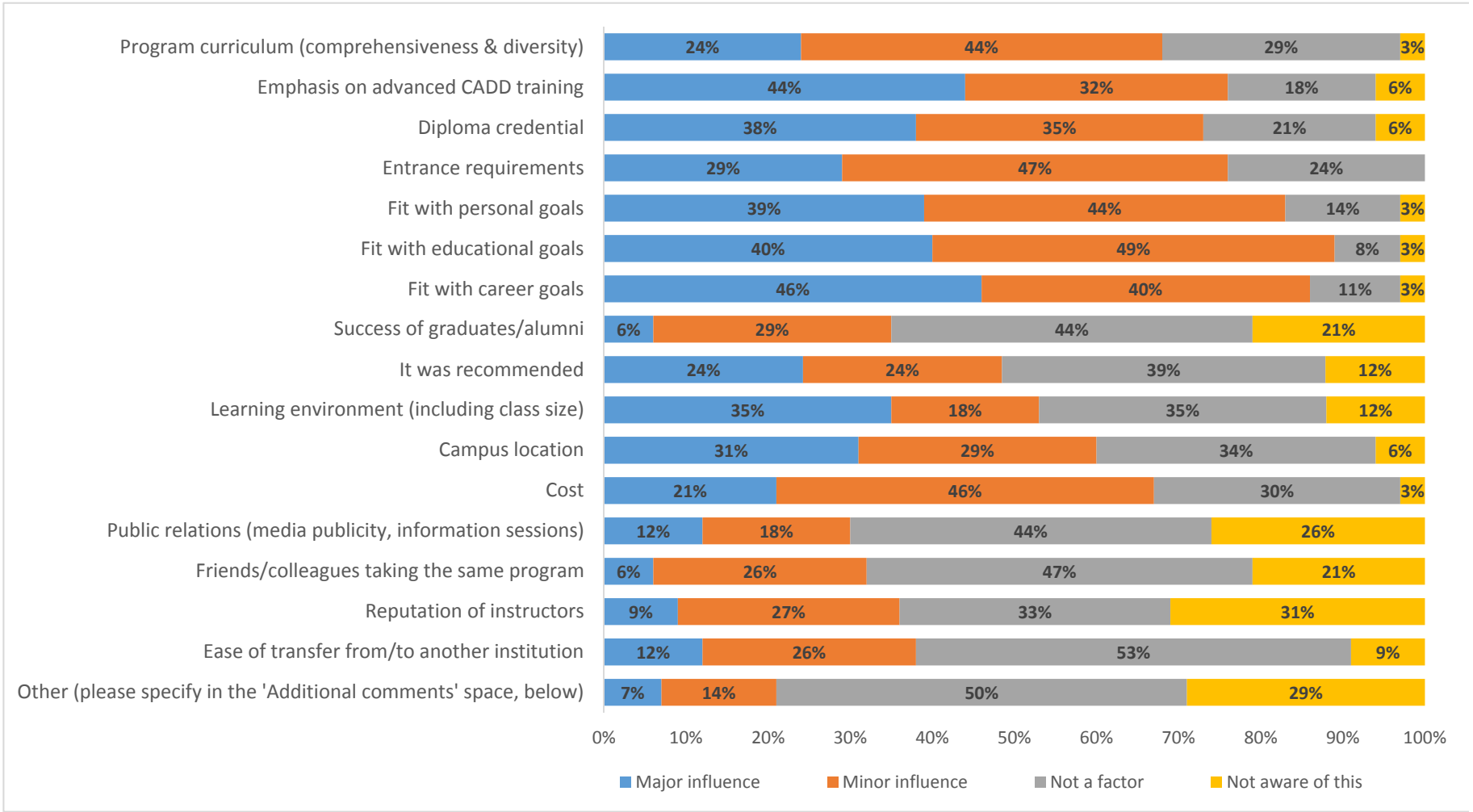


3. What prior experience in a drafting-related field did you have when you applied to the CADD program?	Frequency	Valid Percent
Prior education in a drafting-related field	8	22%
Work or volunteer experience in a drafting-related field	2	6%
Both prior education and work or volunteer experience in a drafting-related field	5	14%
No prior related experience	21	58%
Total	36	100%
Missing	2	
Total	38	

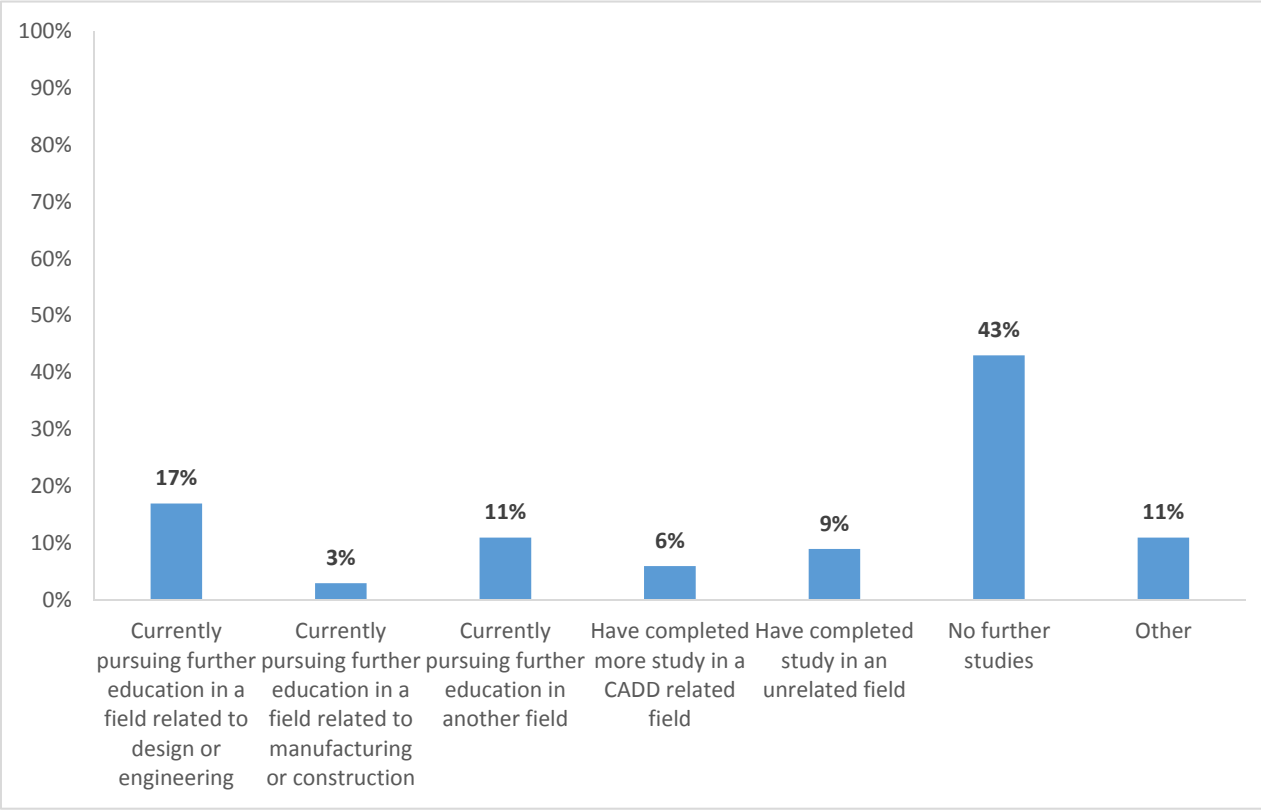


Valid percent

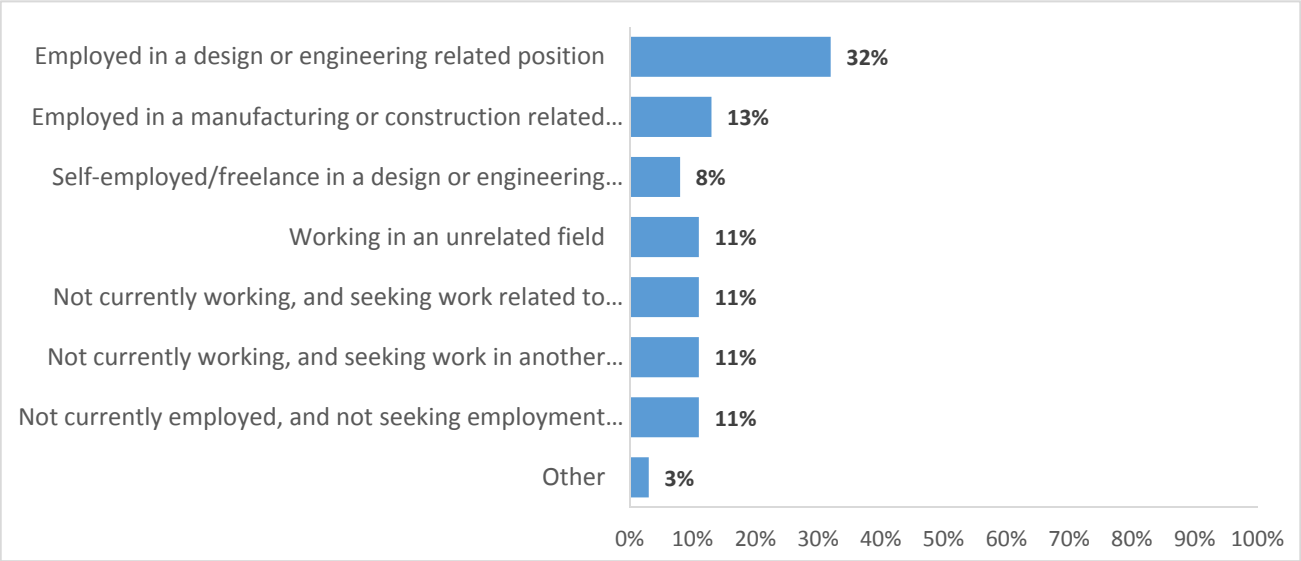
4. To what extent did each of the following influence you to choose Kpu for your CADD education?	Major influence	Minor influence	Not a factor	Not aware of this
Program curriculum (comprehensiveness & diversity)	24%	44%	29%	3%
Emphasis on advanced CADD training	44%	32%	18%	6%
Diploma credential	38%	35%	21%	6%
Entrance requirements	29%	47%	24%	
Fit with personal goals	39%	44%	14%	3%
Fit with educational goals	40%	49%	8%	3%
Fit with career goals	46%	40%	11%	3%
Success of graduates/alumni	6%	29%	44%	21%
It was recommended	24%	24%	39%	12%
Learning environment (including class size)	35%	18%	35%	12%
Campus location	31%	29%	34%	6%
Cost	21%	46%	30%	3%
Public relations (media publicity, information sessions)	12%	18%	44%	26%
Friends/colleagues taking the same program	6%	26%	47%	21%
Reputation of instructors	9%	27%	33%	31%
Ease of transfer from/to another institution	12%	26%	53%	9%
Other (please specify in the 'Additional comments' space, below)	7%	14%	50%	29%


Program curriculum (comprehensiveness & diversity)
24%
44%
29%
3%
Emphasis on advanced CADD training
44%
32%
18%
6%
Diploma credential
38%
35%
21%
6%
Entrance requirements
29%
47%
24%
Fit with personal goals
39%
44%
14%
3%
Fit with educational goals
40%
49%
8%
3%
Fit with career goals
46%
40%
11%
3%
Success of graduates/alumni
6%
29%
44%
21%
It was recommended
24%
24%
39%
12%
Learning environment (including class size)
35%
18%
35%
12%
Campus location
31%
29%
34%
6%
Cost
21%
46%
30%
3%
Public relations (media publicity, information sessions)
12%
18%
44%
26%
Friends/colleagues taking the same program
6%
26%
47%
21%
Reputation of instructors
9%
27%
33%
31%
Ease of transfer from/to another institution
12%
26%
53%
9%
Other (please specify in the 'Additional comments' space, below)
7%
14%
50%
29%
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Major influence
Minor influence
Not a factor
Not aware of this

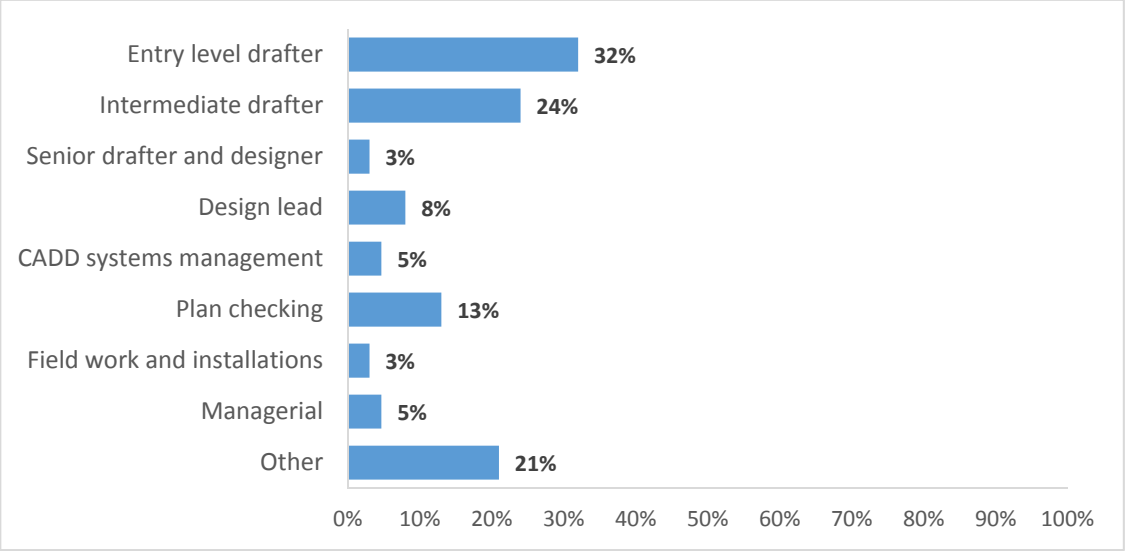
5. Please tell us a little about any further studies you've taken since leaving the CADD program:	Frequency	Valid Percent
Currently pursuing further education in a field related to design or engineering	6	17%
Currently pursuing further education in a field related to manufacturing or construction	1	3%
Currently pursuing further education in another field	4	11%
Have completed more study in a CADD related field	2	6%
Have completed study in an unrelated field	3	9%
No further studies	15	43%
Other	4	11%
Total	35	100%
System	3	
	38	



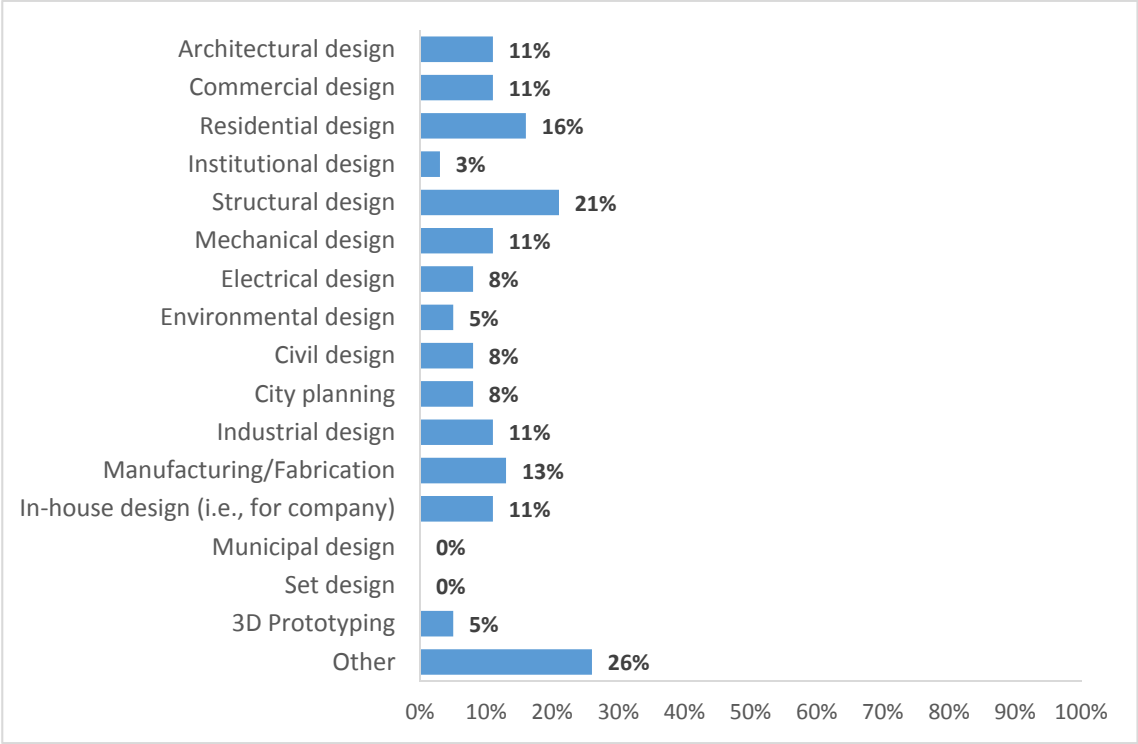
6. Which of the following best describes your current working situation?	Frequency	Valid Percent
Employed in a design or engineering related position	12	32%
Employed in a manufacturing or construction related position	5	13%
Self-employed/freelance in a design or engineering related position	3	8%
Working in an unrelated field	4	11%
Not currently working, and seeking work related to CADD	4	11%
Not currently working, and seeking work in another (or any) field	4	11%
Not currently employed, and not seeking employment (e.g., caring for family, attending school, etc.)	4	11%
Other	1	3%
Total	37	100%
Missing System	1	
	38	



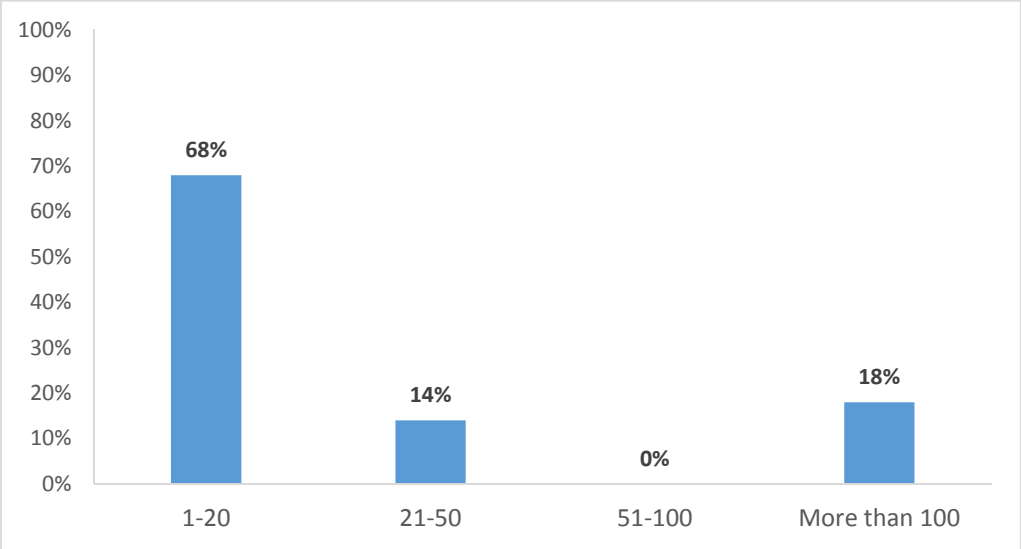
7. In your current position, what are your primary responsibilties? (Please choose all that apply, and add any we've missed.)	Frequency	Valid Percent
Entry level drafter	12	32%
Intermediate drafter	9	24%
Senior drafter and designer	1	3%
Design lead	3	8%
CADD systems management	2	5%
Plan checking	5	13%
Field work and installations	1	3%
Managerial	2	5%
Other	8	21%



8. What is/are the main focus(i) of the business you work for? (Please choose all that apply.)	Frequency	Valid Percent
Architectural design	4	11%
Commercial design	4	11%
Residential design	6	16%
Institutional design	1	3%
Structural design	8	21%
Mechanical design	4	11%
Electrical design	3	8%
Environmental design	2	5%
Civil design	3	8%
City planning	3	8%
Industrial design	4	11%
Manufacturing/Fabrication	5	13%
In-house design (i.e., for company)	4	11%
Municipal design	0	0%
Set design	0	0%
3D Prototyping	2	5%
Other	10	26%

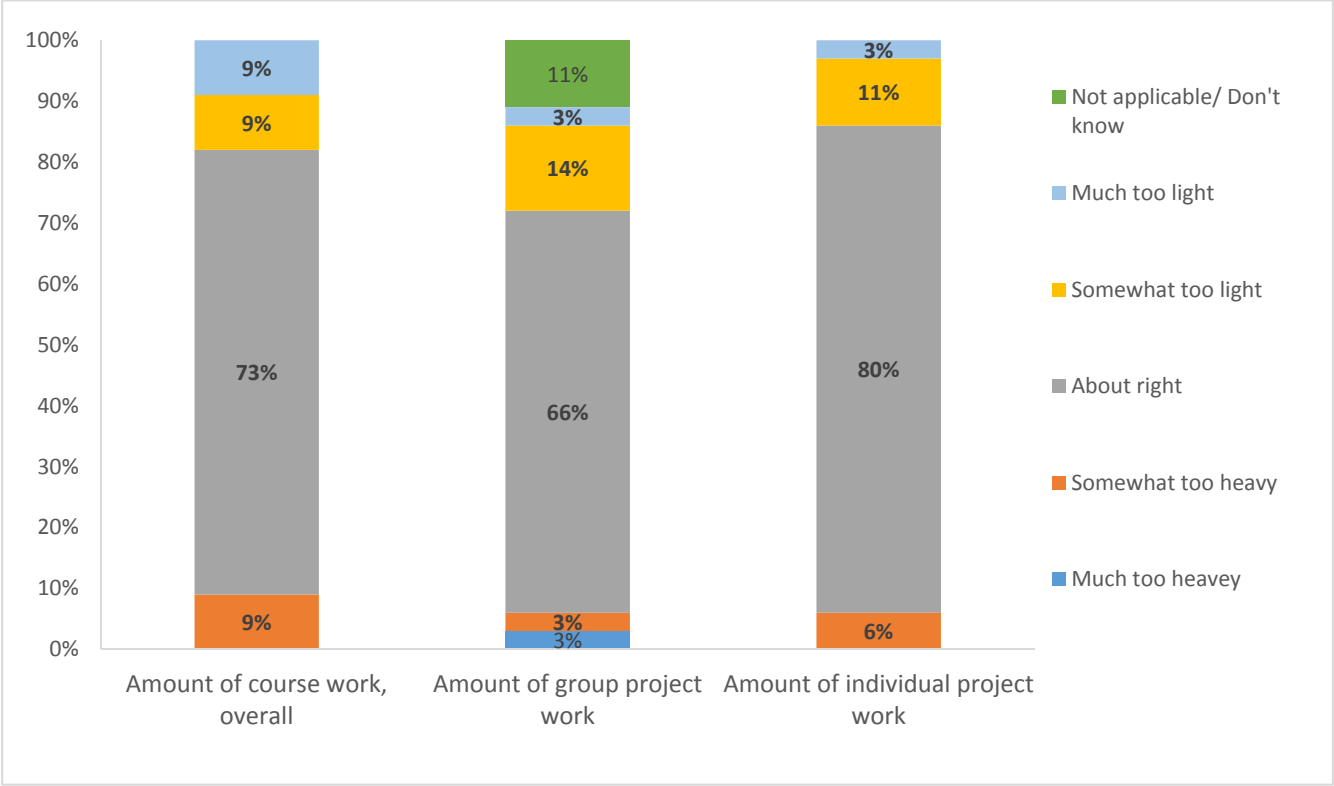


10. How many designers are usually employed in your firm?	Frequency	Valid Percent
1-20	15	68%
21-50	3	14%
51-100		0%
More than 100	4	18%
Total	22	100%
System	16	
	38	

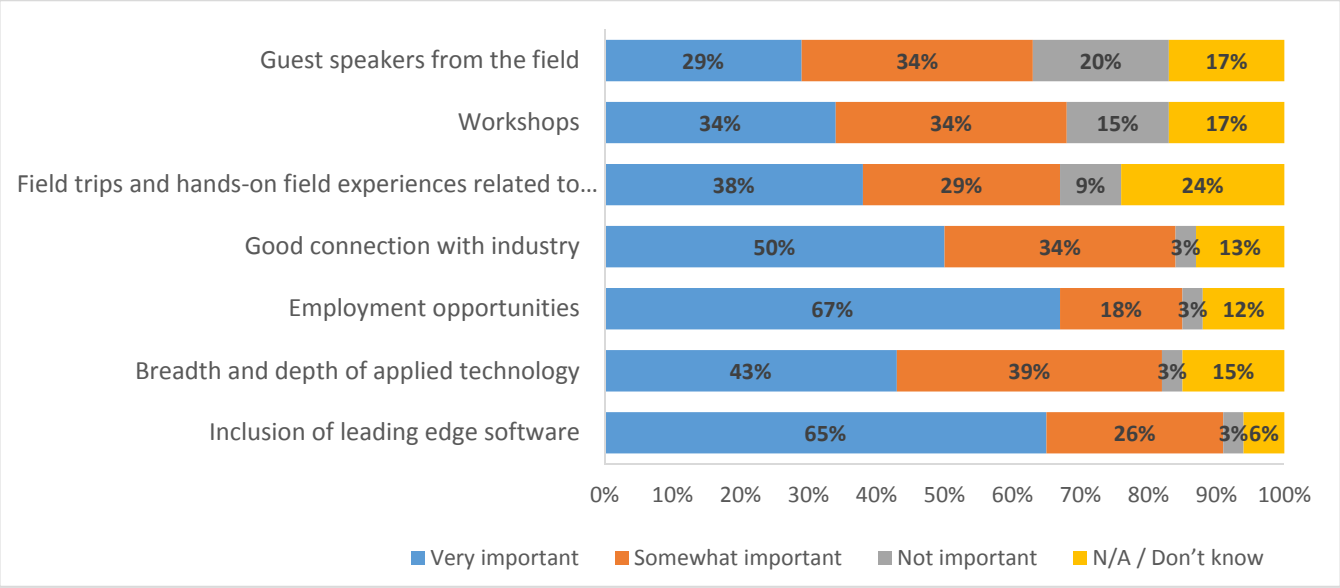


Valid Percent

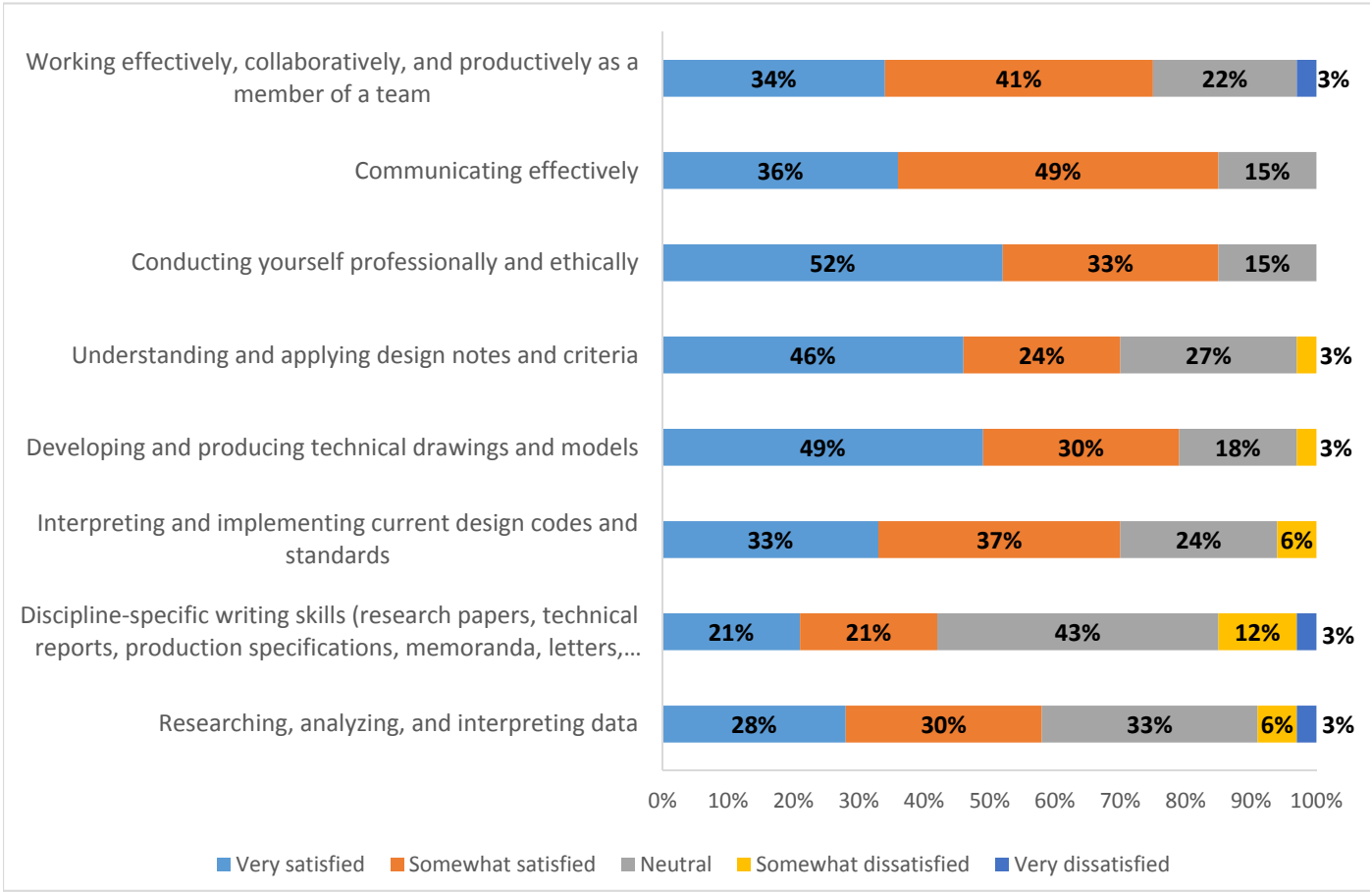
12. In your recollection, was the workload for these aspects of the KPU CADD program…	Much too heavey	Somewhat too heavy	About right	Somewhat too light	Much too light	Not applicable/ Don't know
Amount of course work, overall		9%	73%	9%	9%	
Amount of group project work	3%	3%	66%	14%	3%	11%
Amount of individual project work		6%	80%	11%	3%	



	Valid Percent			
13. How important to your education were the following features of the KPU CADD program?	Very important	Somewhat important	Not important	N/A / Don't know
Guest speakers from the field	29%	34%	20%	17%
Workshops	34%	34%	15%	17%
Field trips and hands-on field experiences related to courses	38%	29%	9%	24%
Good connection with industry	50%	34%	3%	13%
Employment opportunities	67%	18%	3%	12%
Breadth and depth of applied technology	43%	39%	3%	15%
Inclusion of leading edge software	65%	26%	3%	6%

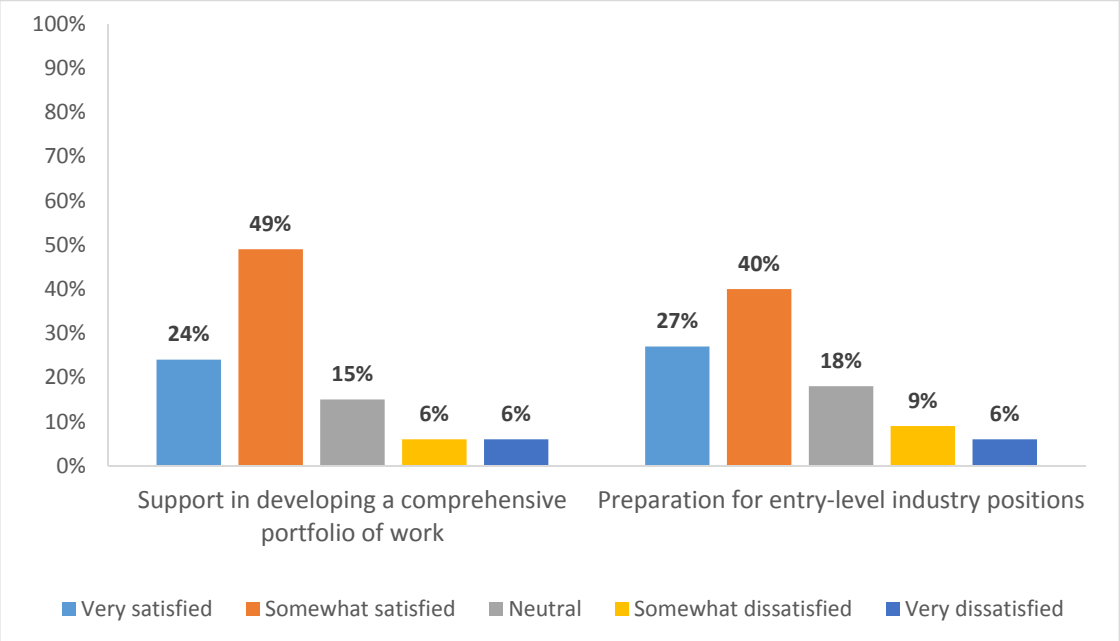


14. How satisfied were you with yoru opportunities to develop the following industry-specific skills in the CADD program:	Valid Percent: Very satisfied	Somewhat satisfied	Neutral	Somewhat dissatisfied	Very dissatisfied
Researching, analyzing, and interpreting data	28%	30%	33%	6%	3%
Discipline-specific writing skills (research papers, technical reports, production specifications, memoranda, letters, etc.)	21%	21%	43%	12%	3%
Interpreting and implementing current design codes and standards	33%	37%	24%	6%	
Developing and producing technical drawings and models	49%	30%	18%	3%	
Understanding and applying design notes and criteria	46%	24%	27%	3%	
Conducting yourself professionally and ethically	52%	33%	15%		
Communicating effectively	36%	49%	15%		
Working effectively, collaboratively, and productively as a member of a team	34%	41%	22%		3%

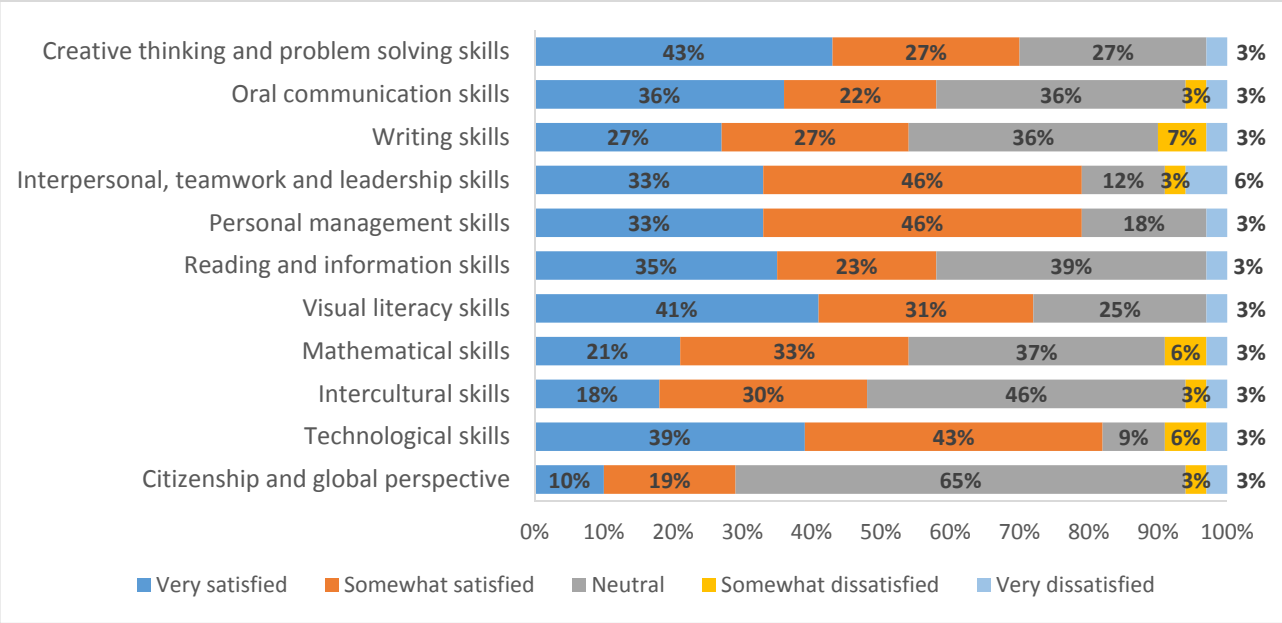


Valid Percent

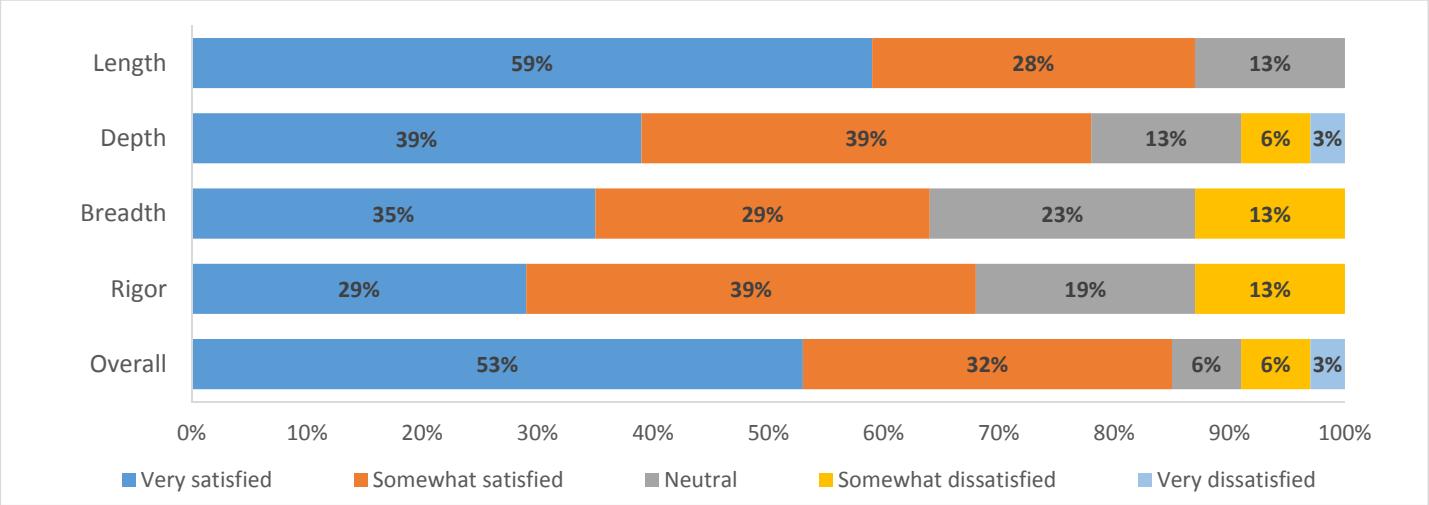
15. How satisfied are you that the CADD program provided you with adequate…	Very satisfied	Somewhat satisfied	Neutral	Somewhat dissatisfied	Very dissatisfied
Support in developing a comprehensive portfolio of work	24%	49%	15%	6%	6%
Preparation for entry-level industry positions	27%	40%	18%	9%	6%



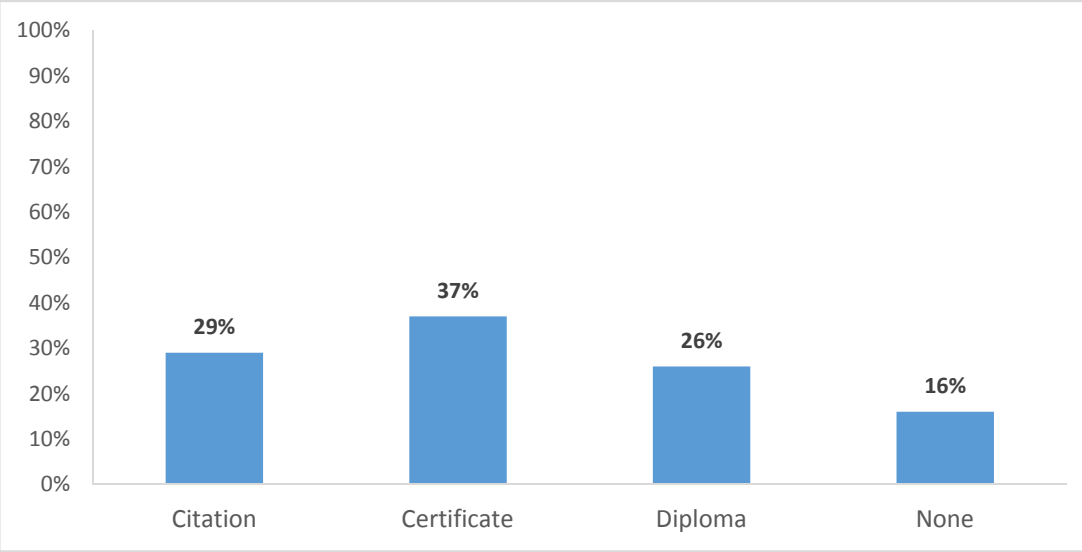
	Valid Percent				
16. How satisfied are you with your opportunities to develop the following *essential skills* in the CADD program?	Very satisfied	Somewhat satisfied	Neutral	Somewhat dissatisfied	Very dissatisfied
Creative thinking and problem solving skills	43%	27%	27%		3%
Oral communication skills	36%	22%	36%	3%	3%
Writing skills	27%	27%	36%	7%	3%
Interpersonal, teamwork and leadership skills	33%	46%	12%	3%	6%
Personal management skills	33%	46%	18%		3%
Reading and information skills	35%	23%	39%		3%
Visual literacy skills	41%	31%	25%		3%
Mathematical skills	21%	33%	37%	6%	3%
Intercultural skills	18%	30%	46%	3%	3%
Technological skills	39%	43%	9%	6%	3%
Citizenship and global perspective	10%	19%	65%	3%	3%



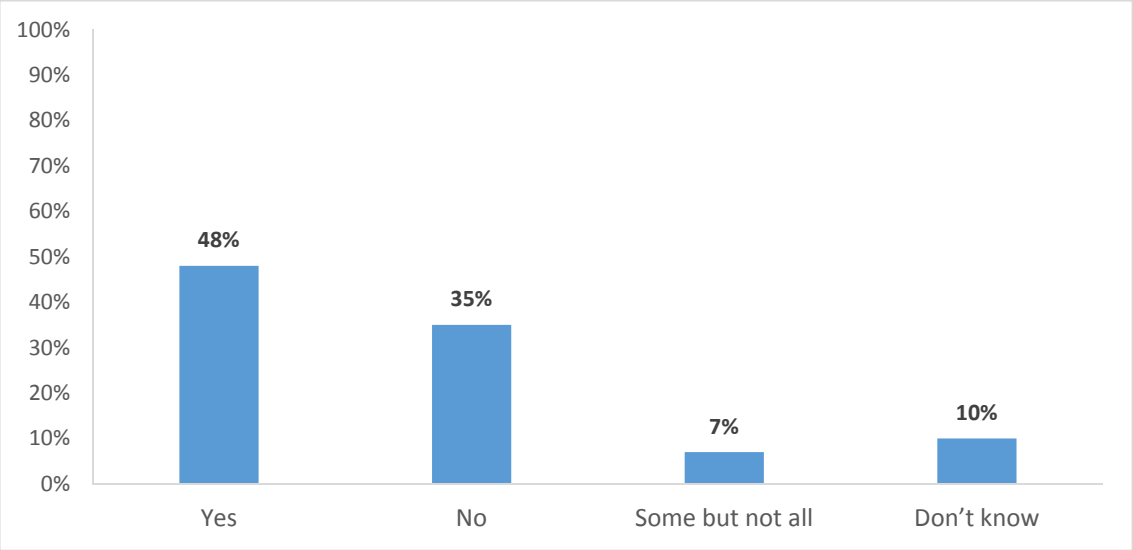
	Valid Percent				
17. How satisfied were you with the CADD program, interms of:	Very satisfied	Somewhat satisfied	Neutral	Somewhat dissatisfied	Very dissatisfied
Length	59%	28%	13%		
Depth	39%	39%	13%	6%	3%
Breadth	35%	29%	23%	13%	
Rigor	29%	39%	19%	13%	
Overall	53%	32%	6%	6%	3%



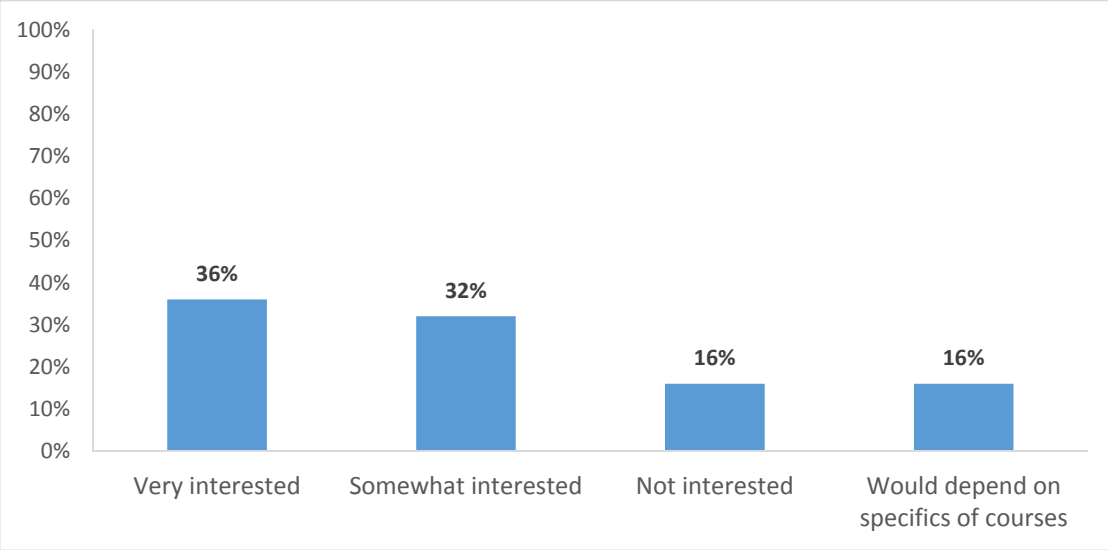
22. Which credential(s) did you fulfill the graduation requirements for in your KPU CADD program? (Please choose all that apply, or *None* , if applicable.)	Frequency	Valid Percent
Citation	11	29%
Certificate	14	37%
Diploma	10	26%
None	6	16%
	41	100%



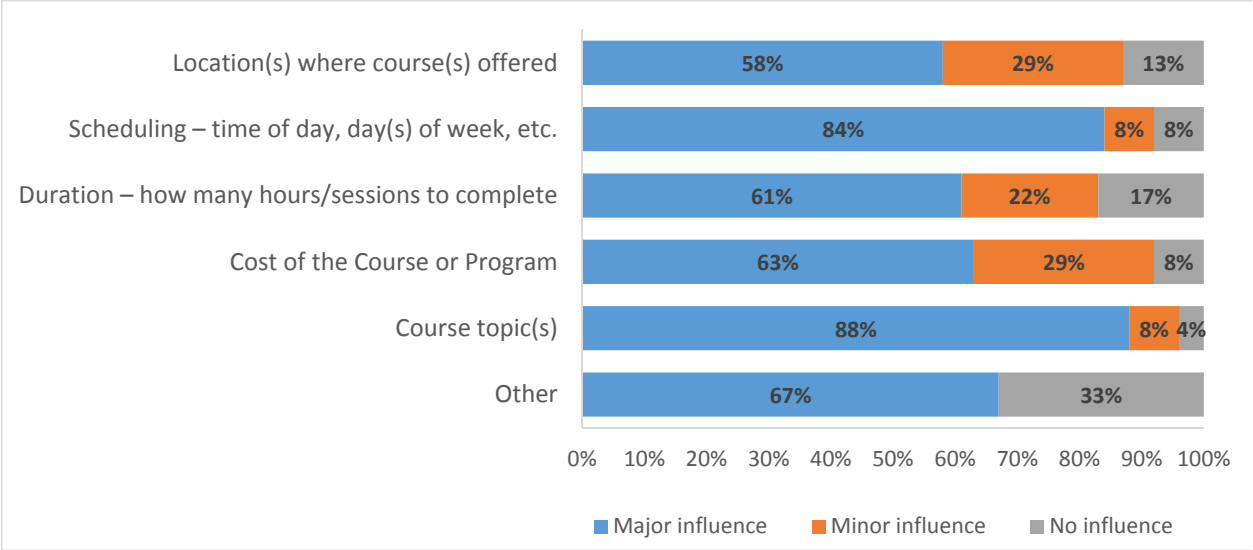
23. Did you apply for and receive the credential(s) you fulfilled the requirements for?	Frequency	Valid Percent
Yes	15	48%
No	11	35%
Some but not all	2	7%
Don't know	3	10%
Total	31	100%
Missing System	7	
Total	38	



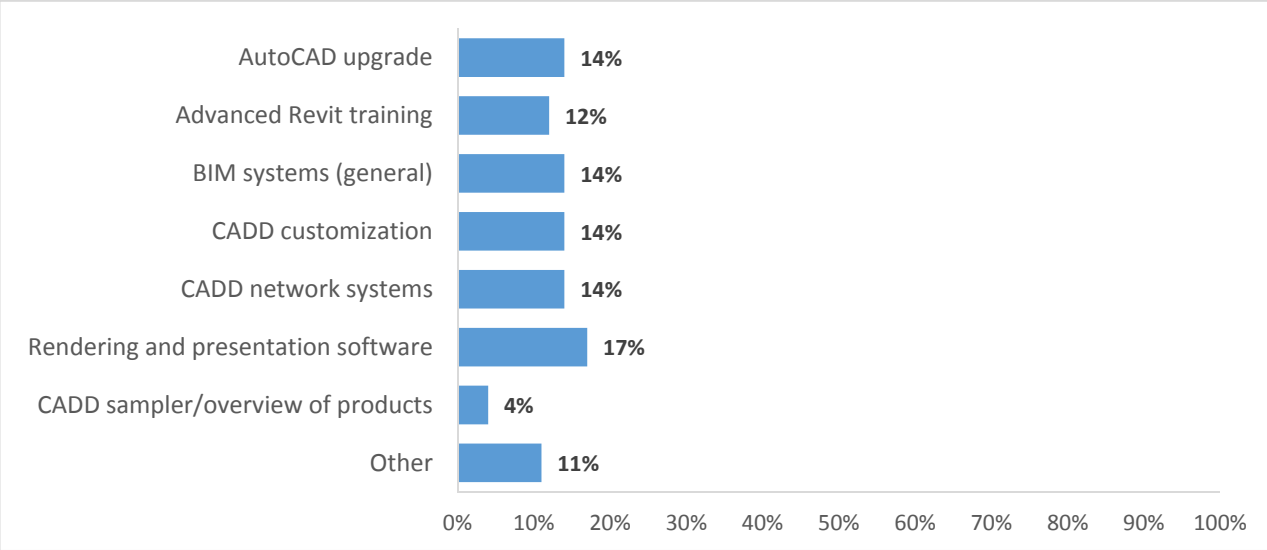
24. In general, how interested would you be in professional upgrade courses?	Frequency	Valid Percent
Very interested	11	36%
Somewhat interested	10	32%
Not interested	5	16%
Would depend on specifics of courses	5	16%
Total	31	100%
System	7	
	38	



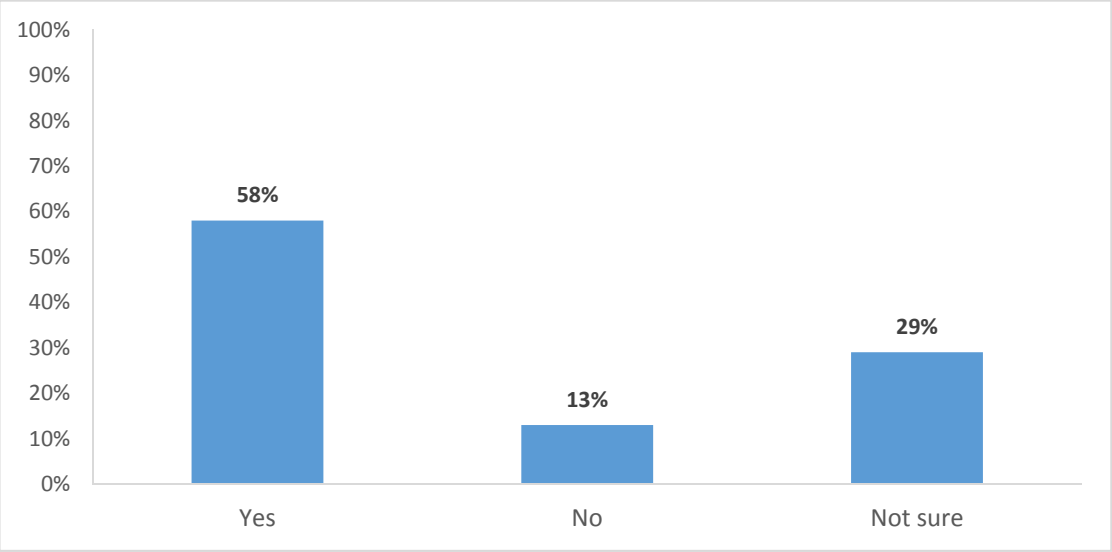
	Valid Percent		
25. To what extent would each of the following influence your decision to take such courses?	Major influence	Minor influence	No influence
Location(s) where course(s) offered	58%	29%	13%
Scheduling – time of day, day(s) of week, etc.	84%	8%	8%
Duration – how many hours/sessions to complete	61%	22%	17%
Cost of the Course or Program	63%	29%	8%
Course topic(s)	88%	8%	4%
Other	67%		33%



26. What specific topics would be of most value or interest to you for Professional Upgrade (CE) courses in CADD Technologies? (Please choose all that apply.)	Frequency	Valid percent
AutoCAD upgrade	10	26%
Advanced Revit training	9	24%
BIM systems (general)	10	26%
CADD customization	10	26%
CADD network systems	10	26%
Rendering and presentation software	12	32%
CADD sampler/overview of products	3	8%
Other	8	21%



27. Would you be interested in further studies if your undergraduate credits could be applied to a degree program, gaining you access directly into the 3rd year of a 4 year degree program?	Frequency	Valid Percent
Yes	18	58%
No	4	13%
Not sure	9	29%
Total	31	100%
System	7	
	38	



Computer Aided Design and Technologies (CADD)
Program Review (2015)

Survey – Industry

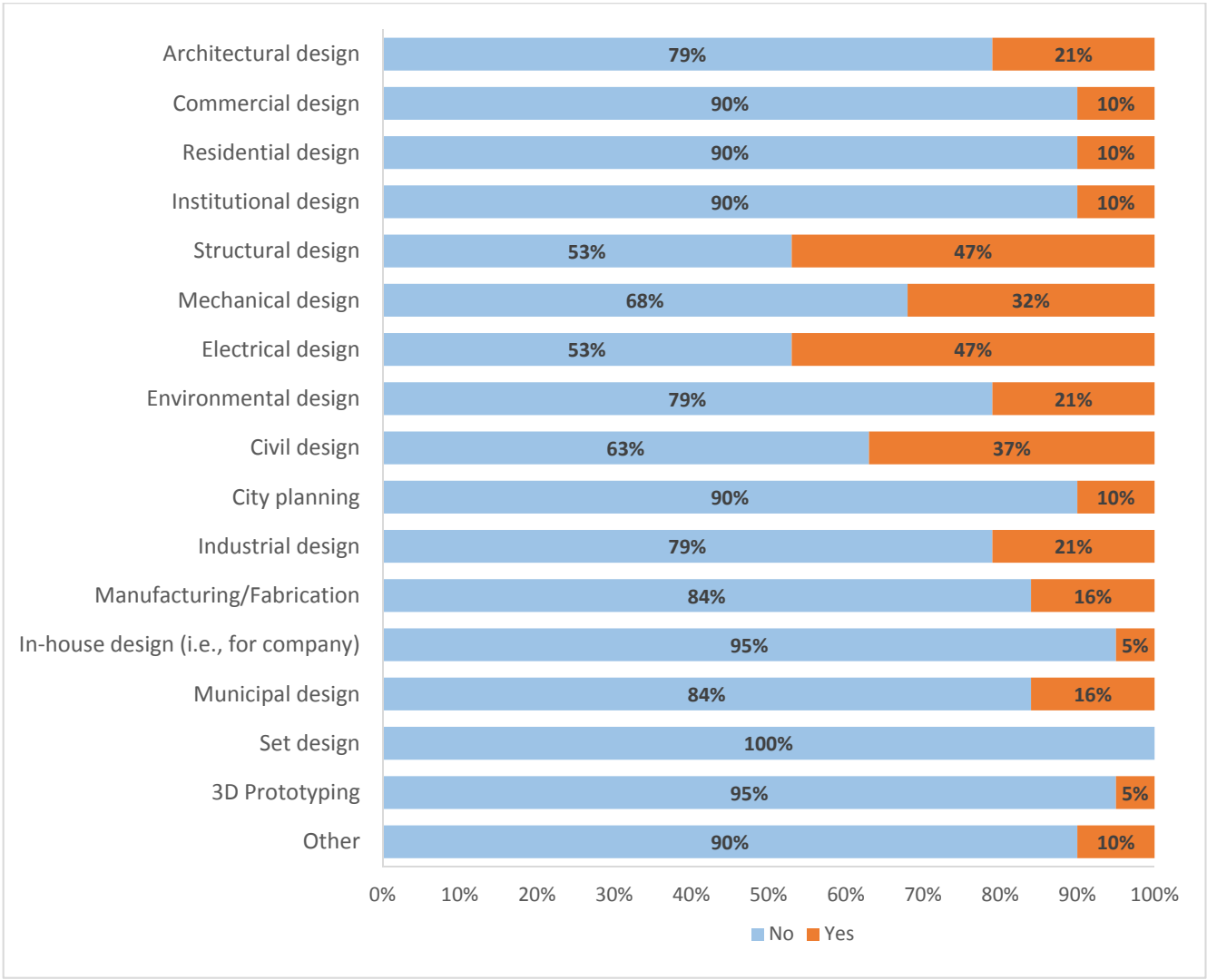
Conducted November 2014

KPU CADD Technologies
Industry Survey for Program Review
Final Data

Thirty-four surveys were sent out, 19 cleaned responses were received, producing a 56% response rate.

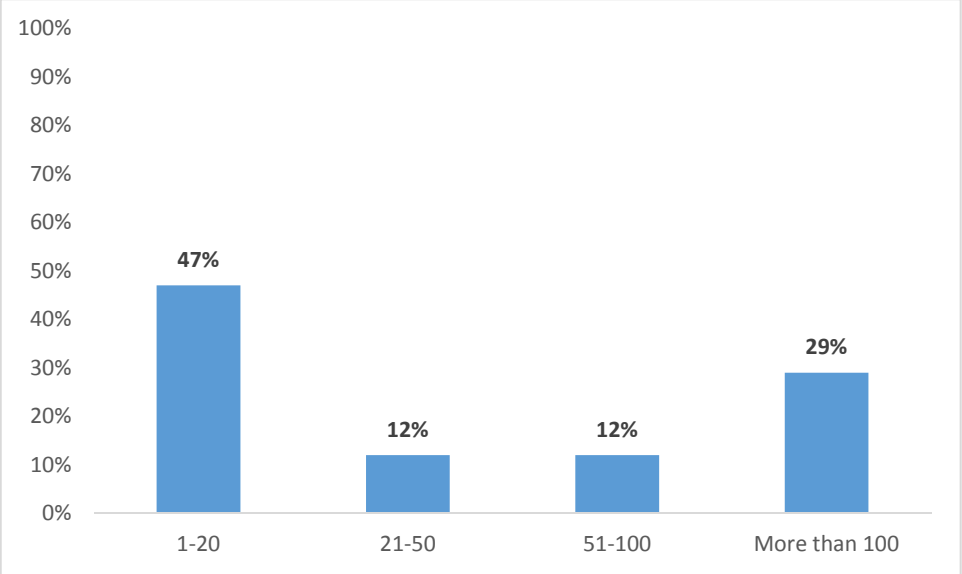
	Frequency	
1. Please tell us a little about your firm. What is/are the main focus(i) of your business? (Please choose all that apply.)	No	Yes
Architectural design	15	4
Commercial design	17	2
Residential design	17	2
Institutional design	17	2
Structural design	10	9
Mechanical design	13	6
Electrical design	10	9
Environmental design	15	4
Civil design	12	7
City planning	17	2
Industrial design	15	4
Manufacturing/Fabrication	16	3
In-house design (i.e., for company)	18	1
Municipal design	16	3
Set design	19	
3D Prototyping	18	1
Other	17	2

	Valid Percent	
1. Please tell us a little about your firm. What is/are the main focus(i) of your business? (Please choose all that apply.)	No	Yes
Architectural design	79%	21%
Commercial design	90%	10%
Residential design	90%	10%
Institutional design	90%	10%
Structural design	53%	47%
Mechanical design	68%	32%
Electrical design	53%	47%
Environmental design	79%	21%
Civil design	63%	37%
City planning	90%	10%
Industrial design	79%	21%
Manufacturing/Fabrication	84%	16%
In-house design (i.e., for company)	95%	5%
Municipal design	84%	16%
Set design	100%	
3D Prototyping	95%	5%
Other	90%	10%


Architectural design
Commercial design
Residential design
Institutional design
Structural design
Mechanical design
Electrical design
Environmental design
Civil design
City planning
Industrial design
Manufacturing/Fabrication
In-house design (i.e., for company)
Municipal design
Set design
3D Prototyping
Other
79%
21%
90%
10%
90%
10%
90%
10%
53%
47%
68%
32%
53%
47%
79%
21%
63%
37%
90%
10%
79%
21%
84%
16%
95%
5%
84%
16%
100%
95%
5%
90%
10%
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
No
Yes

2. What types of client products and services does your firm offer?
Public and Private Sector - Acomplete Range of Services
Electrical consulting for Power, Lighting and communication
BC Hydro, Fortis BC, other power utilities.
Automation and Controls Expertise
Fraser Health is an industry leader of providing medical, diagnosis, inpatient and outpatient care as well as many other services.
Preliminary and Final Designs along with field inspection services
Consulting Engineering Services
C3D, AutoCad,
Bakery and Food service equipment
Architectural focused detailing of exposed structural connections and members.
water parks
I provide construction management and design management consultation services. Currently I am involved with Apex Western Homes Ltd., a firm on the North Shore. I have been brought on board to develop their in house engineering / design / project management department. We now offer complete design build services for the light commercial and residential industry.
Multi-discipline engineering services including structural, geotechnical, mechanical, electrical, civil and environmental services for our Transportation, Hydroelectric, and Mining clients.
Electrical engineering/consulting
Structural consulting, shop and field drawings.
Specializes in the design of wireless communication infrastructure, providing structural and electrical engineering services for thousands of communication installations throughout North America.

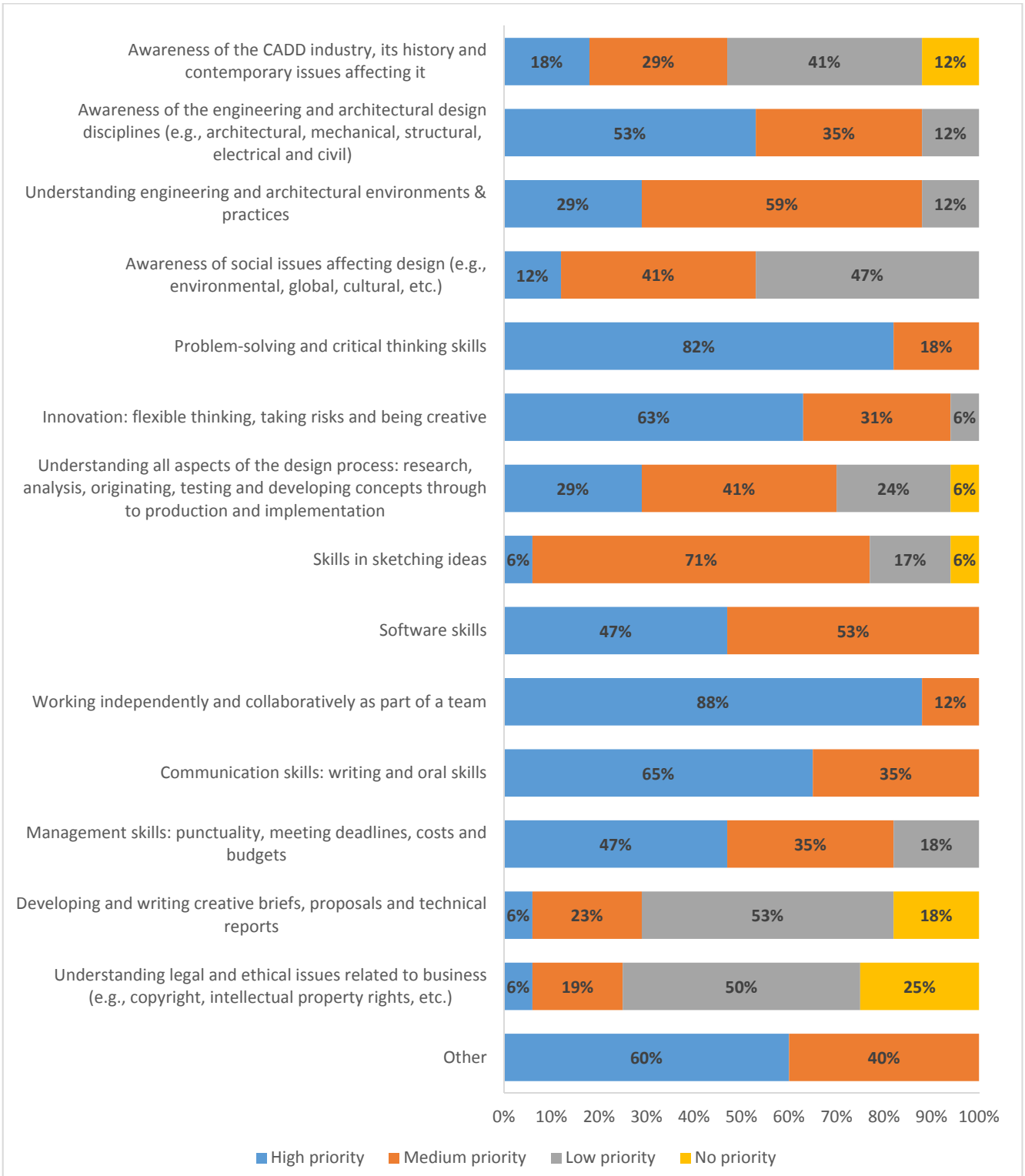
3. How many designers do you usually employ in your firm?	Frequency	Valid Percent
1-20	8	47%
21-50	2	12%
51-100	2	12%
More than 100	5	29%
Total	17	100%
System	2	
	19	



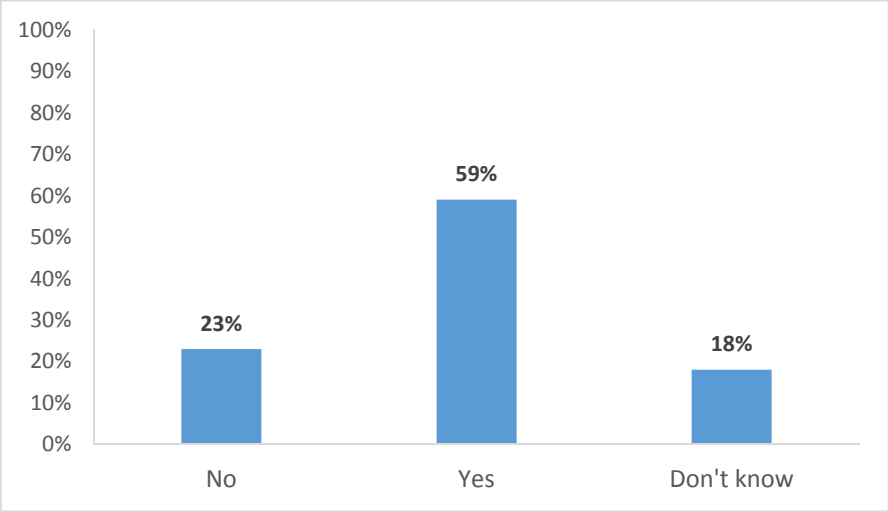
4. And in what areas of specialization?
All Areas
New construction and renovation of commercial, industrial, institutional buildings
Power Utility
Electrical
Electrical & Power Design
Health Care design ranging anywhere from bathroom renos, to O.R., Medical Imaging, and inpatient care design to full fledged operating hospitals
Municipal/Transportation, Process-Mechanical, Structural and Electrical
Mechanical /Piping / Structural /Civil / Electrical / Process /
Civil Engineering, Structural, Environmental, Survey
Food service design
Timber engineering focused, as well as steel and concrete. High end residential, school, commercial and industrial buildings
architectural, structural, mechanical, industrial.
We offer complete design build services for the light commercial and residential industry.
Transportation, Hydroelectric, and Mining infrastructure.
Retail/commercial/industrial
Steel Commercial, Institutional, Infrastructure, Industrial.
telecommunications

	Frequency			
5. In hiring for an entry-level CADD Technician position at your firm, what priority would you give to each of the following:	High priority	Medium priority	Low priority	No priority
Awareness of the CADD industry, its history and contemporary issues affecting it	3	5	7	2
Awareness of the engineering and architectural design disciplines (e.g., architectural, mechanical, structural, electrical and civil)	9	6	2	
Understanding engineering and architectural environments & practices	5	10	2	
Awareness of social issues affecting design (e.g., environmental, global, cultural, etc.)	2	7	8	
Problem-solving and critical thinking skills	14	3		
Innovation: flexible thinking, taking risks and being creative	10	5	1	
Understanding all aspects of the design process: research, analysis, originating, testing and developing concepts through to production and implementation	5	7	4	1
Skills in sketching ideas	1	12	3	1
Software skills	8	9		
Working independently and collaboratively as part of a team	15	2		
Communication skills: writing and oral skills	11	6		
Management skills: punctuality, meeting deadlines, costs and budgets	8	6	3	
Developing and writing creative briefs, proposals and technical reports	1	4	9	3
Understanding legal and ethical issues related to business (e.g., copyright, intellectual property rights, etc.)	1	3	8	4
Other (please specify in the 'Additional comments' space, below)	3	2		

	Valid Percent			
5. In hiring for an entry-level CADD Technician position at your firm, what priority would you give to each of the following:	High priority	Medium priority	Low priority	No priority
Awareness of the CADD industry, its history and contemporary issues affecting it	18%	29%	41%	12%
Awareness of the engineering and architectural design disciplines (e.g., architectural, mechanical, structural, electrical and civil)	53%	35%	12%	
Understanding engineering and architectural environments & practices	29%	59%	12%	
Awareness of social issues affecting design (e.g., environmental, global, cultural, etc.)	12%	41%	47%	
Problem-solving and critical thinking skills	82%	18%		
Innovation: flexible thinking, taking risks and being creative	63%	31%	6%	
Understanding all aspects of the design process: research, analysis, originating, testing and developing concepts through to production and implementation	29%	41%	24%	6%
Skills in sketching ideas	6%	71%	17%	6%
Software skills	47%	53%		
Working independently and collaboratively as part of a team	88%	12%		
Communication skills: writing and oral skills	65%	35%		
Management skills: punctuality, meeting deadlines, costs and budgets	47%	35%	18%	
Developing and writing creative briefs, proposals and technical reports	6%	23%	53%	18%
Understanding legal and ethical issues related to business (e.g., copyright, intellectual property rights, etc.)	6%	19%	50%	25%
Other	60%	40%		


Awareness of the CADD industry, its history and contemporary issues affecting it
18%
29%
41%
12%
Awareness of the engineering and architectural design disciplines (e.g., architectural, mechanical, structural, electrical and civil)
53%
35%
12%
Understanding engineering and architectural environments & practices
29%
59%
12%
Awareness of social issues affecting design (e.g., environmental, global, cultural, etc.)
12%
41%
47%
Problem-solving and critical thinking skills
82%
18%
Innovation: flexible thinking, taking risks and being creative
63%
31%
6%
Understanding all aspects of the design process: research, analysis, originating, testing and developing concepts through to production and implementation
29%
41%
24%
6%
Skills in sketching ideas
6%
71%
17%
6%
Software skills
47%
53%
Working independently and collaboratively as part of a team
88%
12%
Communication skills: writing and oral skills
65%
35%
Management skills: punctuality, meeting deadlines, costs and budgets
47%
35%
18%
Developing and writing creative briefs, proposals and technical reports
6%
23%
53%
18%
Understanding legal and ethical issues related to business (e.g., copyright, intellectual property rights, etc.)
6%
19%
50%
25%
Other
60%
40%
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
High priority
Medium priority
Low priority
No priority

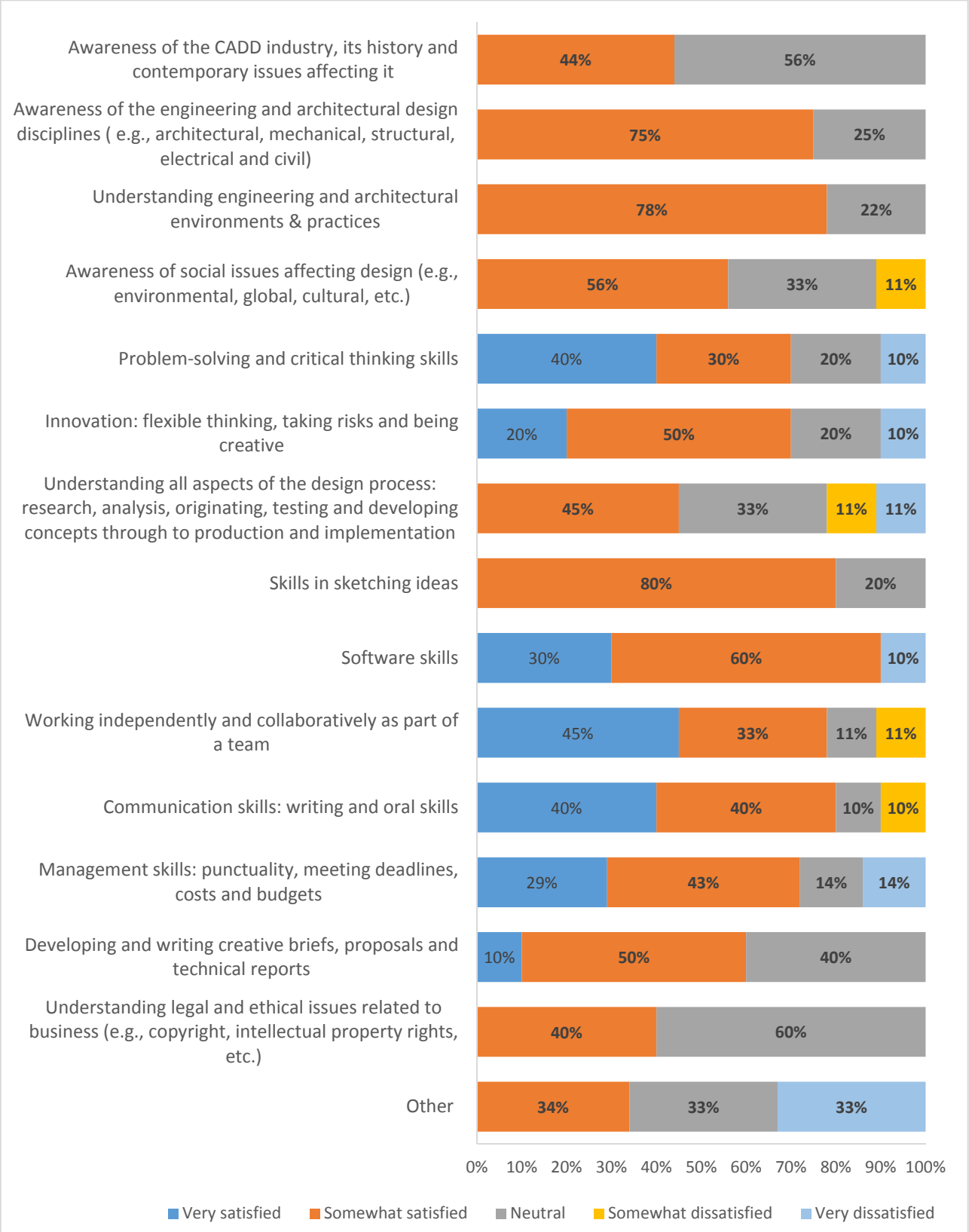
6. Have you hired graduates of KPU's CADD program in the past?	Frequency	Valid Percent
No	4	23%
Yes	10	59%
Don't know	3	18%
Total	17	100%
Missing	2	
Total	19	



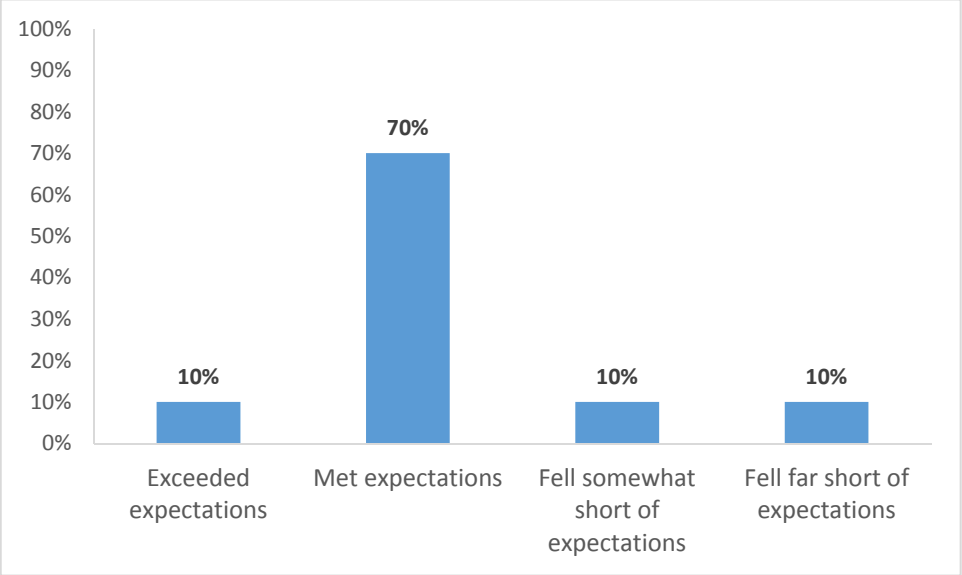
7. What were the key attributes or factors that led you to hire a KPU CADD program graduate?
Knowing there is a minimum Cadd proficiency in all graduates.
Prior experience in the industry an referral
KPU has teh best drafting training in Vancouver.
The understanding of AutoCAD
recommendation from teachers and past employers.
Being a former Kwantlen grad. Recognizing it's a good program.
They would have a solid experience in CADD, and understand the basic commands, and be able to do basic markup.
skills

	Frequency				
8. How satisfied have you been with the skills and preparation of your KPU CADD graduate employee(s), in the following respects?	Very satisfied	Somewhat satisfied	Neutral	Somewhat dissatisfied	Very dissatisfied
Awareness of the CADD industry, its history and contemporary issues affecting it		4	5		
Awareness of the engineering and architectural design disciplines (e.g., architectural, mechanical, structural, electrical and civil)		6	2		
Understanding engineering and architectural environments & practices		7	2		
Awareness of social issues affecting design (e.g., environmental, global, cultural, etc.)		5	3	1	
Problem-solving and critical thinking skills	4	3	2		1
Innovation: flexible thinking, taking risks and being creative	2	5	2		1
Understanding all aspects of the design process: research, analysis, originating, testing and developing concepts through to production and implementation		4	3	1	1
Skills in sketching ideas		8	2		
Software skills	3	6			1
Working independently and collaboratively as part of a team	4	3	1	1	
Communication skills: writing and oral skills	4	4	1	1	
Management skills: punctuality, meeting deadlines, costs and budgets	2	3	1		1
Developing and writing creative briefs, proposals and technical reports	1	5	4		
Understanding legal and ethical issues related to business (e.g., copyright, intellectual property rights, etc.)		4	6		
Other		1	1		1

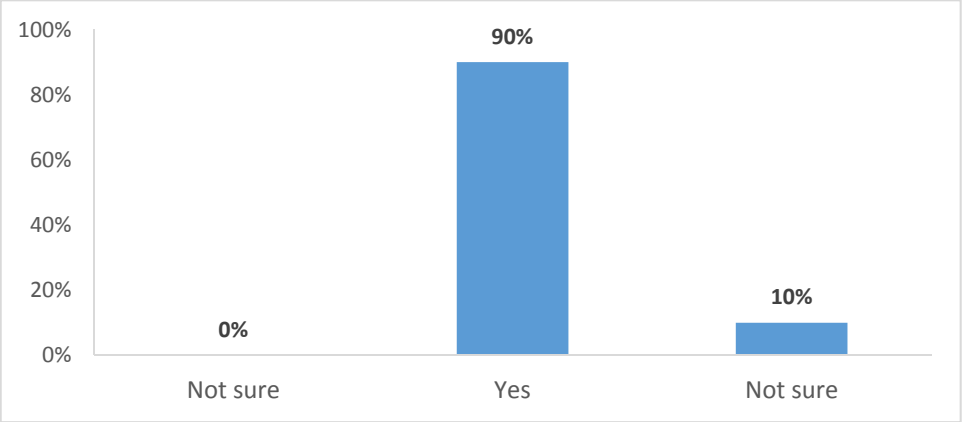
	Valid Percent				
8. How satisfied have you been with the skills and preparation of your KPU CADD graduate employee(s), in the following respects?	Very satisfied	Somewhat satisfied	Neutral	Somewhat dissatisfied	Very dissatisfied
Awareness of the CADD industry, its history and contemporary issues affecting it		44%	56%		
Awareness of the engineering and architectural design disciplines (e.g., architectural, mechanical, structural, electrical and civil)		75%	25%		
Understanding engineering and architectural environments & practices		78%	22%		
Awareness of social issues affecting design (e.g., environmental, global, cultural, etc.)		56%	33%	11%	
Problem-solving and critical thinking skills	40%	30%	20%		10%
Innovation: flexible thinking, taking risks and being creative	20%	50%	20%		10%
Understanding all aspects of the design process: research, analysis, originating, testing and developing concepts through to production and implementation		45%	33%	11%	11%
Skills in sketching ideas		80%	20%		
Software skills	30%	60%			10%
Working independently and collaboratively as part of a team	45%	33%	11%	11%	
Communication skills: writing and oral skills	40%	40%	10%	10%	
Management skills: punctuality, meeting deadlines, costs and budgets	29%	43%	14%		14%
Developing and writing creative briefs, proposals and technical reports	10%	50%	40%		
Understanding legal and ethical issues related to business (e.g., copyright, intellectual property rights, etc.)		40%	60%		
Other		34%	33%		33%


Awareness of the CADD industry, its history and contemporary issues affecting it
44%
56%
Awareness of the engineering and architectural design disciplines (e.g., architectural, mechanical, structural, electrical and civil)
75%
25%
Understanding engineering and architectural environments & practices
78%
22%
Awareness of social issues affecting design (e.g., environmental, global, cultural, etc.)
56%
33%
11%
Problem-solving and critical thinking skills
40%
30%
20%
10%
Innovation: flexible thinking, taking risks and being creative
20%
50%
20%
10%
Understanding all aspects of the design process: research, analysis, originating, testing and developing concepts through to production and implementation
45%
33%
11%
11%
Skills in sketching ideas
80%
20%
Software skills
30%
60%
10%
Working independently and collaboratively as part of a team
45%
33%
11%
11%
Communication skills: writing and oral skills
40%
40%
10%
10%
Management skills: punctuality, meeting deadlines, costs and budgets
29%
43%
14%
14%
Developing and writing creative briefs, proposals and technical reports
10%
50%
40%
Understanding legal and ethical issues related to business (e.g., copyright, intellectual property rights, etc.)
40%
60%
Other
34%
33%
33%
0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%
Very satisfied
Somewhat satisfied
Neutral
Somewhat dissatisfied
Very dissatisfied

9. In general, how well were your expectations met by your KPU CADD graduate employee(s)?	Frequency	Valid Percent
Exceeded expectations	1	10%
Met expectations	7	70%
Fell somewhat short of expectations	1	10%
Fell far short of expectations	1	10%
Total	10	100%
Missing	9	
Total	19	



10. Would you hire a KPU CADD graduate again?	Frequency	Valid Percent
Not sure	0	0%
Yes	9	90%
Not sure	1	10%
Total	10	100%
Missing	9	
Total	19	



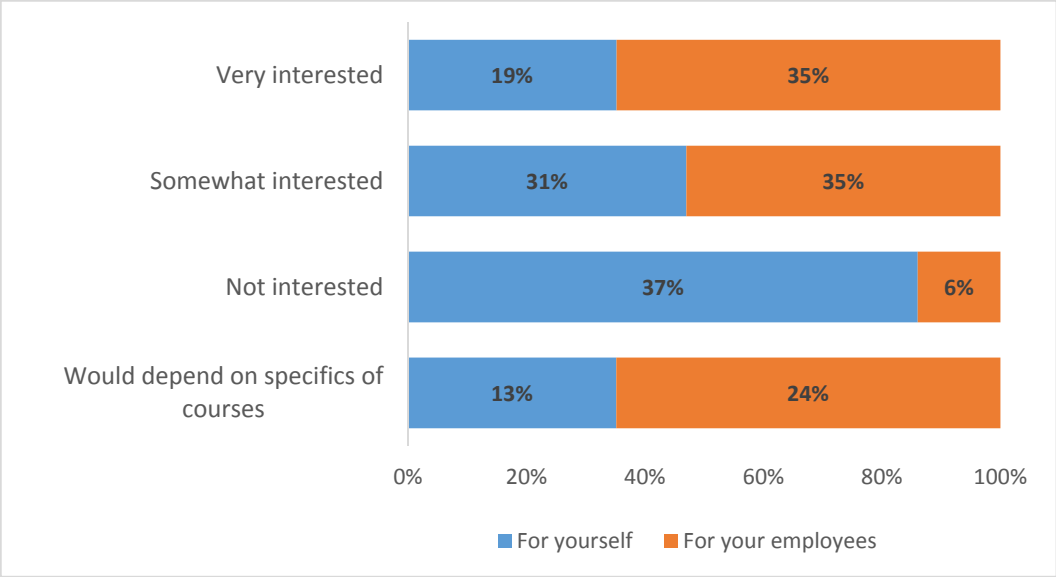
11. If you would hire another KPU CADD grad, please tell us why:
Well rounded training. We still look for industry specific training as the service that we provide isn't generally taught in any schools.
I know the level ans skill sett of the drafter I am hiring
The student meet our needs as a junior CAD tech.
Well trained, good skills
Because of the structural courses offered, they will at least have a basic knowledge of construction.
The grads seem to have a good basic understanding of autocad and related software.
We would require a cad test to be completed to make sure the grad knows cad.
Because they have completed the CADD grad program.

12. If you would not hire another KPU CADD grad, please tell us why not:
Disappointed with the lack of CADD skill. &CR;&LF;No knowledge of the basic commands or xrefs.

Q13. What comes to mind when you think about KPU's CADD program and its graduates?
Solid CAD background and willingness to learn
Comprehensive
Quality graduates
I know only of one of your former teachers in George Cawdry. Previously, he suggested that I apply to be a teacher in your program.
Students looking to make a mark in the industry that have been well trained using the latest technologies and tools
I myself graduated through the program and have high regards for it.
skill
I am a graduate of KPU and I relate my learning experience their to other institutions where I've also studied. I am constantly comparing the needs of my industry with the products of these institutions.
We've had very good experience in the past with KPU graduates, and thought highly of the program, which lead us bring another one into our company. Sadly, the cad skills were lacking.
Lack of steel detailing knowledge
good education.

	Frequency			
14. Please tell us about your potential interest in Professional Upgrade (CE) courses in CADD Technologies if they were offered at KPU. In general, how interested would you be in such courses?	Very interested	Somewhat interested	Not interested	Would depend on specifics of courses
For yourself	3	5	6	2
For your employees	6	6	1	4

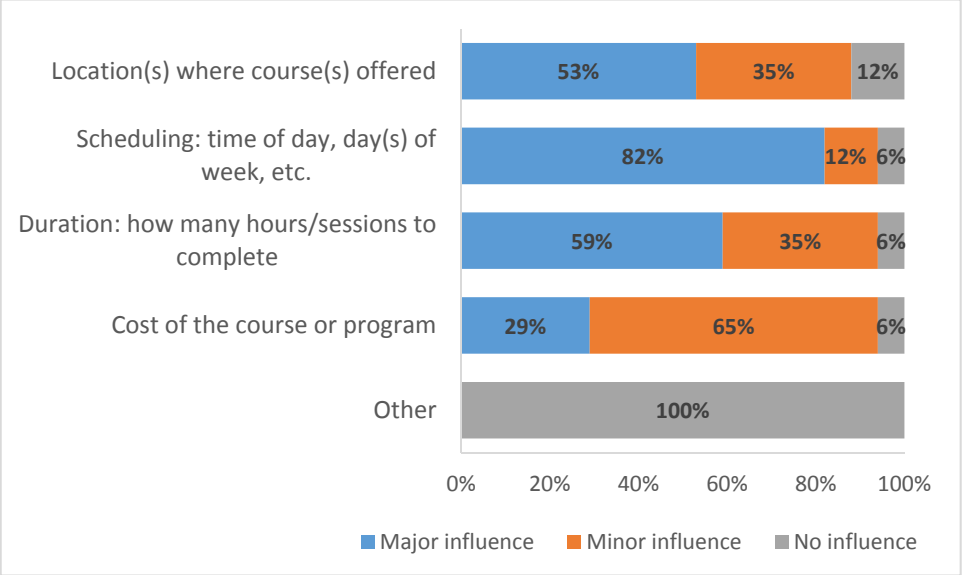
14. Please tell us about your potential interest in Professional Upgrade (CE) courses in CADD Technologies if they were offered at KPU. In general, how interested would you be in such courses?	Valid Percent			
	Very interested	Somewhat interested	Not interested	Would depend on specifics of courses
For yourself	19%	31%	37%	13%
For your employees	35%	35%	6%	24%



15. To what extent would each of the following influence your decision to take such courses, or to encourage your employees to take them?	Frequency		
	Major influence	Minor influence	No influence
Location(s) where course(s) offered	9	6	2
Scheduling: time of day, day(s) of week, etc.	14	2	1
Duration: how many hours/sessions to complete	10	6	1
Cost of the course or program	5	11	1
Other			2

15. To what extent would each of the following influence your decision to take such courses, or to encourage your employees to take them?	Valid percent		
	Major influence	Minor influence	No influence
Location(s) where course(s) offered	53%	35%	12%
Scheduling: time of day, day(s) of week, etc.	82%	12%	6%
Duration: how many hours/sessions to complete	59%	35%	6%
Cost of the course or program	29%	65%	6%
Other			100%

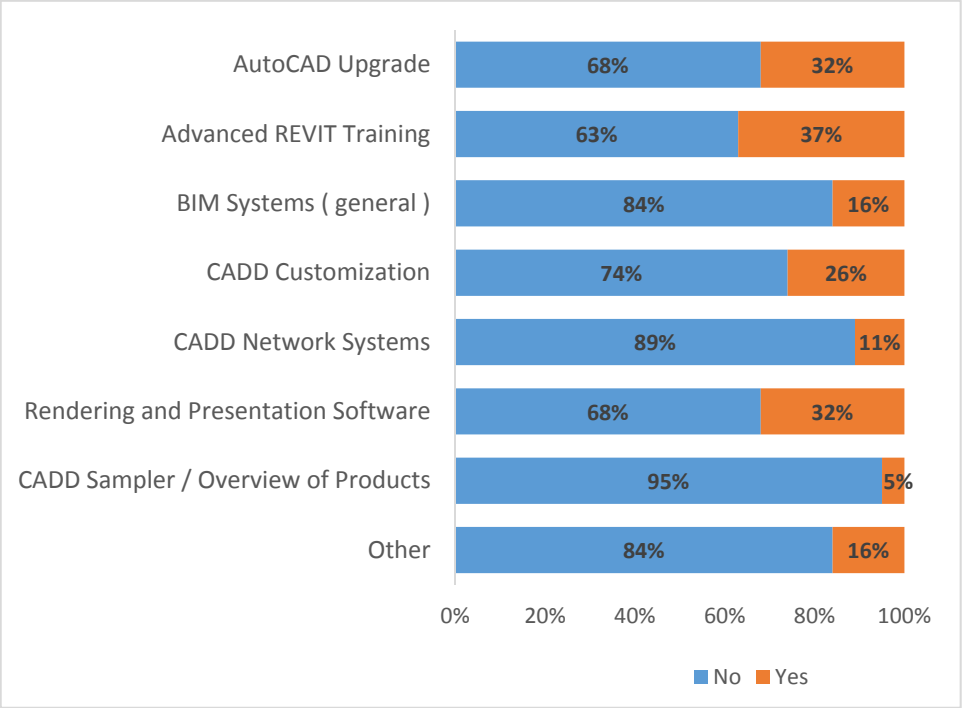
15. Additional Comments
No comments



16. What specific topics would be of most value or interest to you for Professional Upgrade (CE) courses in CADD Technologies? Please choose all that apply, and suggest any others of interest to you:	Frequency	
	No	Yes
AutoCAD Upgrade	13	6
Advanced REVIT Training	12	7
BIM Systems (general)	16	3
CADD Customization	14	5
CADD Network Systems	17	2
Rendering and Presentation Software	13	6
CADD Sampler / Overview of Products	18	1
Other	16	3

16. What specific topics would be of most value or interest to you for Professional Upgrade (CE) courses in CADD Technologies? Please choose all that apply, and suggest any others of interest to you:	Valid percent	
	No	Yes
AutoCAD Upgrade	68%	32%
Advanced REVIT Training	63%	37%
BIM Systems (general)	84%	16%
CADD Customization	74%	26%
CADD Network Systems	89%	11%
Rendering and Presentation Software	68%	32%
CADD Sampler / Overview of Products	95%	5%
Other	84%	16%

15. If you selected, please specify:
Civil 3D
Managing a drafting project
building science/technology
SolidWorks, Tekla



17. Please add any further comments that you think would help us in our future planning:
A high emphasis placed on presentation.
Students could benefit from developing good basic drafting skills.

	18. If you would like to receive information on the program please provide your name and information for preferred method of contact (one preferred method is sufficient): (This information will be separated from your survey responses so they will remain anonymous.)		
	Name:	**Company:**	**Phone:**
1	Cary Powell	ZE Power Engineering	6043048683
2	Nicole Hlus	Autopro Automation	604 4195216
3	Michael Snow	Fraser Health	7782277646
4	Rick	Hoegler	604-602-1175
5	Kelly Wightman	McElhanney Consulting Service	604-596-0391
6	Carmen Feldman	Whitewater West	
7	Richard Dyck	Apex Western Homes Ltd.	604-868-9264
8	Rick Ghag	Klohn Crippen Berger Ltd.	604-251-8480

18. If you would like to receive information on the program please provide your name and information for preferred method of contact (one preferred method is sufficient):
(This information will be separated from your survey responses so they will remain anonymous.)

Cary Powell
ZE Power Engineering
6043048683
cary.powell@ze.com
130-5920 No 2 Rd Richmond

Nicole Hlus
Autopro Automation
604 4195216
nicole.hlus@autopro.ca

Michael Snow
Fraser Health
7782277646
Michael.snow@fraserhealth.ca
#400 - 13450 102nd Ave, Surrey, BC V3T 0H1

Rick
Hoegler
604-602-1175
rhoegler@allnorth.com
V6E 4A6

Kelly Wightman
McElhanney Consulting Service
604-596-0391
Kwightman@mcelhanney
V3T5X3

Carmen Feldman
Whitewater West
604-868-9264
carmen.feldman@whitewaterwest.com

Richard Dyck
Apex Western Homes Ltd.
604-868-9264
designmng@apexhomes.ca
#104 - 1515 Barrow St. North Vancouver V7J 1B7

Rick Ghag
Klohn Crippen Berger Ltd.
604-251-8480
rghag@klohn.com
V5M 4X6

Computer Aided Design and Technologies (CADD)
Program Review (2015)

Survey – CADD Faculty

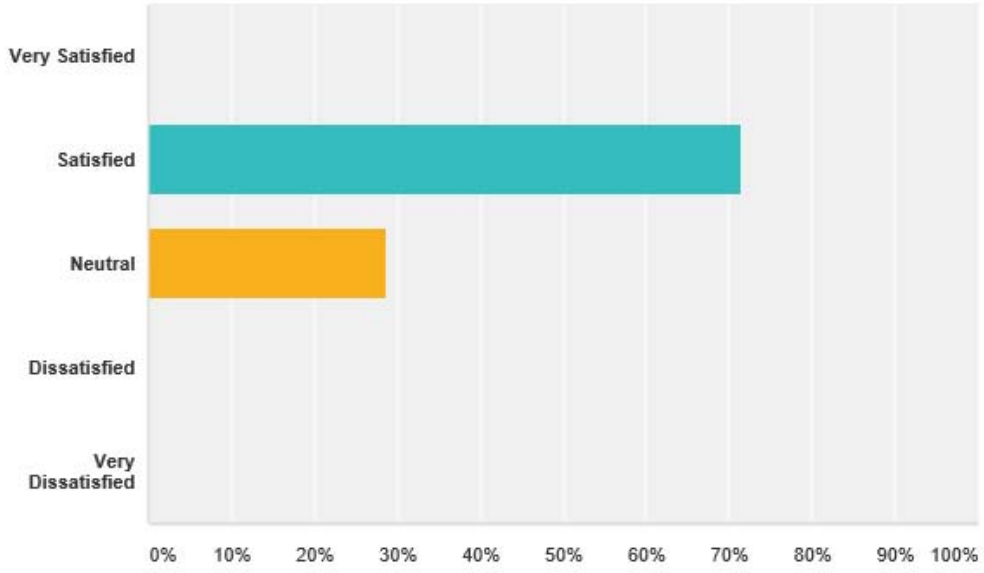
Conducted April 2015

Faculty Survey

Q1 Customize Export

How satisfied are you with Professional Development (PD) opportunities at KPU?

Answered: 7 Skipped: 0



Answer Choices	Responses	
Very Satisfied	0.00%	0
Satisfied	71.43%	5
Neutral	28.57%	2
Dissatisfied	0.00%	0
Very Dissatisfied	0.00%	0
Total		7

Comments (4)

Showing 4 responses

I have used funds a few times, and it seems pretty good.
4/14/2015 2:09 PM View respondent's answers

There are lots of PD opportunities, but they tend to be during the Summer semester, when I am teaching. I hope that faculty check out the free access to www.lynda.com through KPU
4/14/2015 1:41 PM View respondent's answers

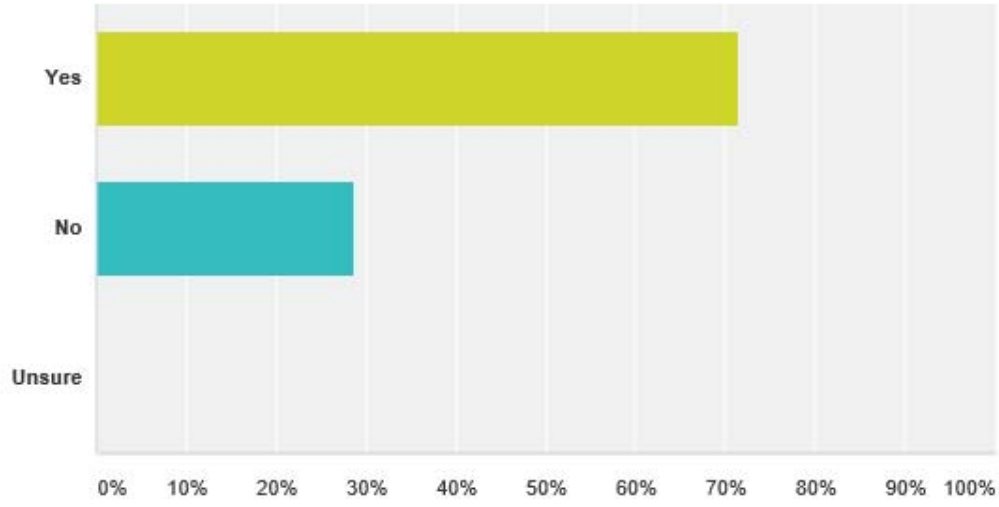
Would like to know more about what qualifies as PD
4/14/2015 1:39 PM View respondent's answers

There are several opportunities available at KPU, but they do not always fit in with my schedule. I hope more people at KPU take advantage of the free www.lynda.com training now available at KPU
4/14/2015 12:53 PM View respondent's answers

Q2 Customize Export

Choose One. I have participated in KPU funded PD opportunities other than Autocad Univ.

Answered: 7 Skipped: 0



Answer Choices	Responses	
Yes	71.43%	5
No	28.57%	2
Unsure	0.00%	0
Total		7

Comments (4)

Showing 4 responses

support for various conferences.
4/14/2015 3:24 PM View respondent's answers

I went to UBC a few years ago and completed a geothermal installation course. The KPU covered all my costs.
4/14/2015 2:09 PM View respondent's answers

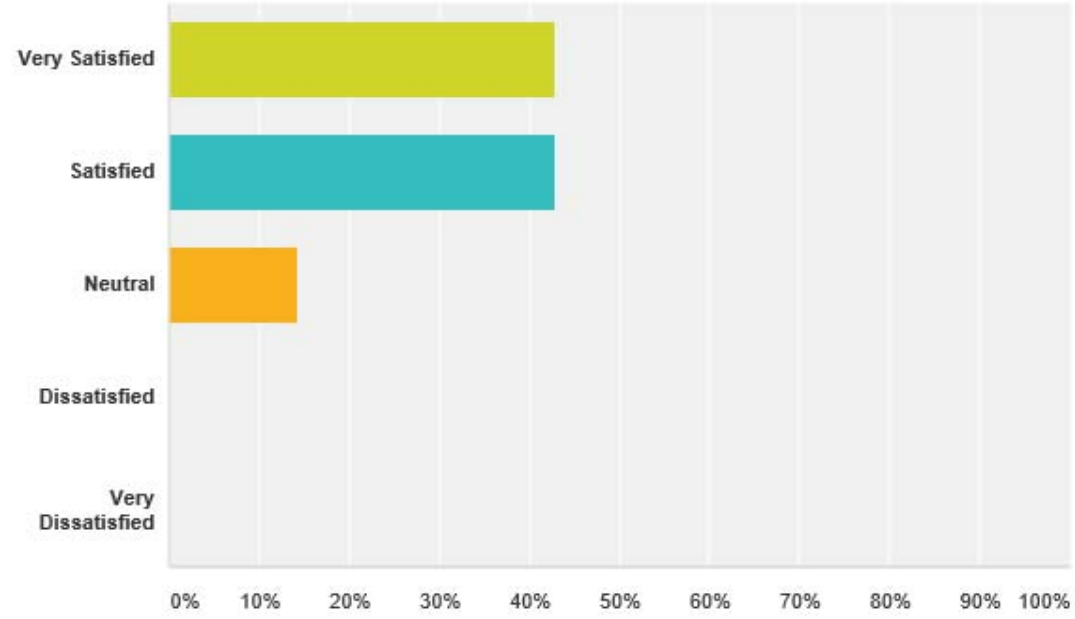
Last year I was able to get funded for a Project Management training course in Vancouver
4/14/2015 1:41 PM View respondent's answers

Last year I was funded for a course in Vancouver in Project Management
4/14/2015 12:53 PM View respondent's answers

Q3 Customize Export

How satisfied are you with how PD funds are managed and approved?

Answered: 7 Skipped: 0



Answer Choices	Responses	
Very Satisfied	42.86%	3
Satisfied	42.86%	3
Neutral	14.29%	1
Dissatisfied	0.00%	0
Very Dissatisfied	0.00%	0
Total		7

Comments (4)

Showing 4 responses

When asked, or requested, the process has been efficient and quick. Any questions have been answered promptly.
4/14/2015 3:24 PM View respondent's answers

Our Trades and Technology PD committee do a good job. For the most part I am able to get funding when I request it
4/14/2015 1:41 PM View respondent's answers

Tally is very approachable and helpful
4/14/2015 1:39 PM View respondent's answers

So far I have been able to get PD funds when requested.
4/14/2015 12:53 PM View respondent's answers

Q4 Expor

How would you like to see PD opportunities at KPU improved?

Answered: 5 Skipped: 2

Showing 5 responses

No comments at the moment.
4/14/2015 4:47 PM View respondent's answers

Many scheduled PD activities conflict with teaching schedules. Would be nice if more opportunities for workshops at our campus and directed to our needs.
4/14/2015 3:39 PM View respondent's answers

Ability to access more local and online conferences with support from PD funds. More target opportunities towards technology based services - more than a pointer to Lynda.com courses - as nice as that is to have, need more support to use existing technology (for example: Moodle) with help - not having to lead the way and find it on our own. Able to access PD funds and time to use them other than at short periods in one term (KPU supported PD activities. in May.)
4/14/2015 3:24 PM View respondent's answers

I do not feel that they need improvement. Of course more money would be nice, and then I would probably apply for more. But there is already available Ed Leave, the .6 PD fund, and KPU faculty can take up to 9 credits free at KPU each year. This provides lots of PD opportunities
4/14/2015 1:41 PM View respondent's answers

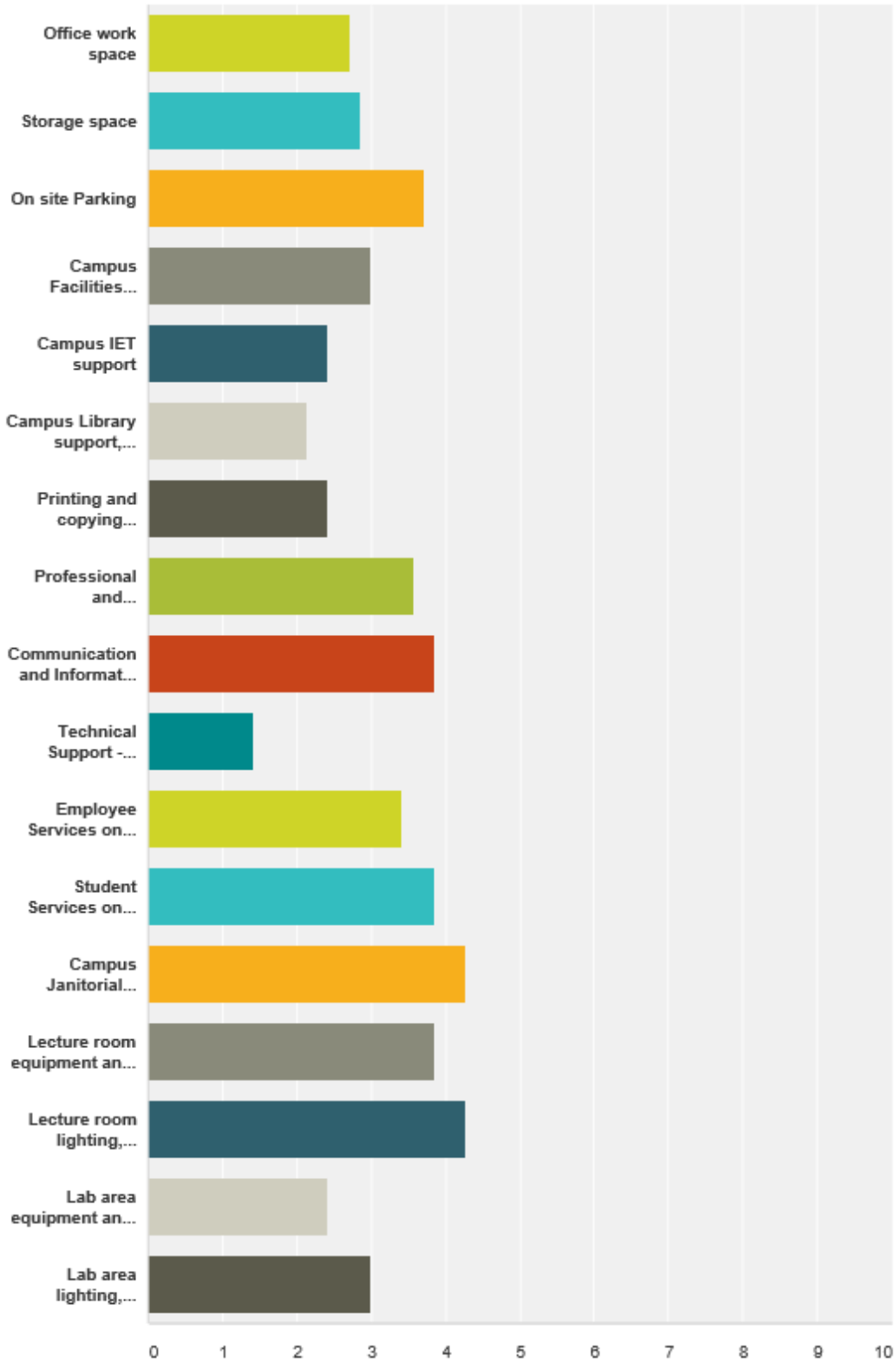
Not sure how funds are distributed but it would be nice to be able to access info on unused funds that remain available

Q5

Customize Export

How satisfied are you with the following workplace conditions?

Answered: 7 Skipped: 0



	Very Satisfied	Satisfied	Neutral	Dissatisfied	Very Dissatisfied	Total	Weighted Average
Office work space	0.00% 0	42.86% 3	42.86% 3	14.29% 1	0.00% 0	7	2.71
Storage space	0.00% 0	57.14% 4	14.29% 1	14.29% 1	14.29% 1	7	2.86
On site Parking	0.00% 0	28.57% 2	14.29% 1	14.29% 1	42.86% 3	7	3.71
Campus Facilities support	0.00% 0	28.57% 2	42.86% 3	28.57% 2	0.00% 0	7	3.00
Campus IET support	14.29% 1	42.86% 3	28.57% 2	14.29% 1	0.00% 0	7	2.43
Campus Library support, services and resources	0.00% 0	85.71% 6	14.29% 1	0.00% 0	0.00% 0	7	2.14
Printing and copying services	0.00% 0	71.43% 5	14.29% 1	14.29% 1	0.00% 0	7	2.43
Professional and Administrative support from the Dean's office	0.00% 0	0.00% 0	57.14% 4	28.57% 2	14.29% 1	7	3.57
Communication and Information from the Dean's office	0.00% 0	0.00% 0	42.86% 3	28.57% 2	28.57% 2	7	3.86
Technical Support - Program Assistant	57.14% 4	42.86% 3	0.00% 0	0.00% 0	0.00% 0	7	1.43
Employee Services on campus	0.00% 0	14.29% 1	42.86% 3	28.57% 2	14.29% 1	7	3.43
Student Services on campus	0.00% 0	0.00% 0	28.57% 2	57.14% 4	14.29% 1	7	3.86
Campus Janitorial services	0.00% 0	0.00% 0	14.29% 1	42.86% 3	42.86% 3	7	4.29
Lecture room equipment and furnishing	0.00% 0	14.29% 1	0.00% 0	71.43% 5	14.29% 1	7	3.86
Lecture room lighting, heating, cooling	0.00% 0	0.00% 0	0.00% 0	71.43% 5	28.57% 2	7	4.29
Lab area equipment and furnishing	0.00% 0	71.43% 5	14.29% 1	14.29% 1	0.00% 0	7	2.43
Lab area lighting, heating, cooling	0.00% 0	42.86% 3	14.29% 1	42.86% 3	0.00% 0	7	3.00

Comments (6)

Q6

Export

How would you like to see Workplace Conditions at KPU improved?

Answered: 6 Skipped: 1

Showing 6 responses

Would be nice if labs and lecture rooms were cleaned more than once per year. Standards of janitorial services from Facilities should be posted and supervised on occasion.

4/14/2015 3:39 PM View respondent's answers

This campus was promoted as a Technology leader and Power Smart & LEED example. In practice it is often over-heated in summer and cold in winter with little local chance to adjust conditions. Having more than garbage cans emptied 4 evenings a week (and interrupting classes) and to actually clean the floors, desks and other surfaces. IN the past we were told to just go buy a broom and do it ourselves - is this now part of our accountable time? Proper storage capability to keep required examples of student work (intended for future accreditation purposes) with out damage would be a minimal requirement. Storage for program related item and displays that are not in the labs or classrooms. Our students treat the areas as they see them being treated and respected by the institution - which is to say it is left a mess most of the time. It should not be up to the instructors and students to clean the hallways and floors.

4/14/2015 3:24 PM View respondent's answers

Upgrade all equipment and furnishings. Never hear anything back from the early alert, that we send for students that require extra help.

4/14/2015 2:09 PM View respondent's answers

More consistent support from Admissions... for example, we have had 3 different Admissions persons looking after our program in one year. It takes lot of work for each person to get up to speed on the CADD program and then they are replaced. More support from the Registrar's office for things like Course Substitution and Program Waivers More incentive to put Professional training in place. Some of the funds would have to come back to the CADD program

4/14/2015 1:41 PM View respondent's answers

The Dean's office needs to continue to work at understanding our program and students, failure to do so makes us feel out of place in this campus. In addition, properly funded budgets will help to improve workplace conditions, facilities and services.

4/14/2015 1:39 PM View respondent's answers

Need more comfortable chairs in the classrooms. I do not think that we should have to pay for parking at work. Student services, especially counseling, are not always available. It is hard to keep the temperature of the rooms controlled properly.

4/14/2015 12:53 PM View respondent's answers

Q7 Export

Please provide comment on any other relevant topic(s) related to your employment at KPU that is not covered in this survey.

Answered: 5 Skipped: 2

Showing 5 responses

Little to no credit given for committee work. Work additional to teaching (committee or dept work) is not equally distributed among dept. members.
4/14/2015 3:39 PM View respondent's answers

Support for our department needs in an academic and technology areas. Actual support and encouragement from management other than occasional tour stop to show off the 3D printer.
4/14/2015 3:24 PM View respondent's answers

Cleaning services are very poor. I have never worked in a place that was so dirty.
4/14/2015 2:09 PM View respondent's answers

It feels punitive to have to get permission from the Dean's office to buy so much as a pencil from the bookstore.
4/14/2015 1:41 PM View respondent's answers

I think that the upper levels of admin need to find some measure of harmony with the Vision they present and publish and the challenges that exist in how they intentionally or otherwise send workload & admin pressure/stress downhill to the teaching faculty, creating division instead of teamwork
4/14/2015 1:39 PM View respondent's answers

APPENDIX B

CADD Full Program Proposal (FPP)

Kwantlen
UNIVERSITY COLLEGE

Full Program Proposal

Diploma in Drafting/Computer Aided Drafting & Design (CADD)

Kwantlen University College
College of Trades and Technology
Date: September 25 2006

Kwantlen UNIVERSITY COLLEGE

Non Degree Program Proposal

Drafting/Computer Aided Drafting & Design (CADD) Technologies

September 25 2006

Table of Contents

Kwantlen UNIVERSITY COLLEGE

Non Degree Program Proposal

Name of Institution:	**Kwantlen University College**
Title of Program:	**Drafting/CADD Technologies**
Credential to be awarded to graduates:	**Diploma in Drafting/Computer Aided Drafting and Design**
Length of Program: **2 years**	
Institutional Contact: **Joanne Massey –** Instructor **John Sprung –** Coordinator **Dana Goedbloed –** Acting Dean, College of Trades and Technologies	
Phone: 604-599-2918	Email: joanne.massey@kwantlen.ca
Date: February 22 2006	

A. Executive Summary:

A1. Summarize the purpose of the proposal

This proposal outlines one Diploma in Drafting/CADD, with several *Specialties*, or options: Architectural, Civil, Electrical, Industrial, Manufacturing, Structural, and Steel Detailing.

The purpose of this proposal for the Drafting/CADD Diploma Program is to address the need for Drafting/CADD graduates with appropriate academic and practical skills, and the need for Drafting/CADD graduates to be able to continually update and enhance their skills as they progress along their career path.

The following excerpt from BC Workfutures recognizes both of these issues:

> "Industrial growth and increasingly complex design problems associated with new products and manufacturing have resulted in a growing demand for drafting services. However, the growing use and capabilities of computer-aided design (CAD) technologies have increased the productivity and according to industry sources, most drafters in B.C. today are CAD operators. Progressively fewer but more **highly skilled** technologists and technicians will be required to complete the same amount of drafting.
>
> Growth and advancements in technology are taking place at an astonishingly rapid rate. For this reason, it is necessary for technologists and technicians in all of these fields to keep abreast of developments within their area of expertise. Periods of retraining and professional development are common and **those who have updated skills and knowledge have an advantage over others when competing for employment opportunities in these fields**."

Information located (March 2006) at:
http://www.workfutures.bc.ca/profiles/profile.cfm?noc=225&lang=en&site=graphic
Emphasis Added

This proposal addresses the issues of career advancement, employer needs, and academic credentials with credits that are conducive to obtaining a diploma.

Students will be educated in theoretical knowledge and trained in the academic and practical skills and outcomes that industry requires of graduates to be job-ready as a Drafting/CADD person. Particular attention is paid to ensuring that all students gain critical core knowledge, appropriate Drafting/CADD skills, a professional attitude, essential skills, and the academic components necessary to continue on their post-secondary career path. Other existing Drafting/CADD Certificate programs do not address the academic components, Math, Physics and English, nor do they offer a two year Diploma.

The educational outcomes were developed from the Developing A CurriculUM (DACUM) process, which includes validation with a Program Advisory Committee (PAC), a separate PAC for each of the seven Drafting/CADD disciplines. Educational outcomes are packaged to provide academic and Drafting/CADD skills that will lead to the Citation, Certificate, Advanced Certificate, Advanced Certificate with Co-op, and Diploma.

Students may choose to exit the program after completing any of these credentials. This will provide students with the option of graduating with the appropriate Drafting/CADD credential required for each phase of their employment career.

Responding to the needs of industry articulated through the PAC, and using references to labour market demand, this proposal elaborates on:

- the need for the program;
- who has been consulted;
- the manner in which the program will be delivered;
- the outcomes of the program.

Students and graduates will benefit from the Drafting/CADD Diploma program because the selected academic credits will allow previous graduates and new students to acquire high-level skills in their chosen Drafting/CADD discipline while at the same time earning academic credits that are conducive to a diploma.

Employers will benefit from the Drafting/CADD Diploma program by gaining highly qualified Drafting/CADD graduates who will provide current technical knowledge and skills, as well as have a continuous opportunity to upgrade their training.

This proposal supports the Kwantlen University College mission statement outlined in the **Strategic Framework** by creating a continuous degree path. It creates student and faculty retention by offering courses and credentials that create ongoing opportunities for both students and faculty.

> **Kwantlen Mission Statement**: We create an exceptional learning environment committed to preparing learners for leadership, service and success.

Mission Statement is located (March 2006) at:
http://plaza.kwantlen.ca/sites/ventures.nsf/files/Strategic-Framework-27-Aug-03.pdf/$FILE/Strategic-Framework-27-Aug-03.pdf

A2. Outline the key objectives and outcomes of the proposed program in one or two pages

The objectives and outcomes of the Drafting/CADD Diploma Program support Kwantlen's current mission statement and core values as identified in its **Strategic Framework**:

Learning

We value learning as the core of everything we do. Life-long learning helps us all—students, faculty and staff—to realize our potential.

We focus on learning as our first and most important value.

We meet the needs of our students for careers, for life and for further education.

We integrate all programs, providing laddered educational opportunities for students.

Objectives

For Kwantlen to succeed strategically, we focus on three key objectives. These are:

- Student and graduate success
- Education and service excellence
- Service to communities

Kwantlen Strategic Framework is located (March 2006) at:
http://plaza.kwantlen.ca/sites/ventures.nsf/files/Strategic-Framework-27-Aug-03.pdf/$FILE/Strategic-Framework-27-Aug-03.pdf

The Kwantlen University College Drafting/CADD Diploma Program provides students with the opportunity to develop an educational career path and obtain Drafting and CADD skills required by industry. The primary objective of this Diploma is to prepare students for a career in Drafting/CADD, and to provide lifelong learning opportunities.

One key objective of this Diploma program is to combine the best curricular and andragogical practices of academic and vocational education into a single integrated program that acknowledges drafting skills and theoretical understanding. Another key objective is to create seamless pathways that integrate academic credentials and drafting practice, and enable graduates to proceed successfully to further education.

Other Program Objectives include:

- Establish basic core knowledge and skills necessary for the Drafting/CADD industry;
- Offer a flexible system of credentials that matches student goals with labour market demands;
- Provide appropriate academic credentials for each level of the program through multiple entry and exit points;
- Provide training in all disciplines of Drafting/CADD;
- Provide a Co-operative Education option;
- Enable increased accessibility and the options for Prior Learning Assessment and Recognition (PLAR);
- Includes flexible scheduling options;
- May ladder into Degree programs;
- Includes current Kwantlen courses in other disciplines.

Outcomes

Students or graduates of the Drafting/CADD Diploma Program will:

- Acquire essential knowledge and skills as required by industry.
- Apply knowledge and skills in planning and completing complex drafting and CADD projects.
- Analyze and evaluate technical and non-technical information.
- Identify, formulate and solve drafting and design problems by using appropriate methods including computers and current and emerging technology.
- Develop critical, creative, and reflective thinking, decision-making, and problem-solving skills to effectively co-operate and collaborate with others to achieve goals in the workplace and in personal situations.

As well, graduates of the new Drafting/CADD Diploma program will use advanced Computer Aided Drafting & Design (CADD) software to produce a variety of technical drawings in Architectural, Engineering, Construction, and Manufacturing design offices.

They will prepare technical drawings and plans used by manufacturing and construction workers to build everything from manufactured products, such as computers, appliances, industrial equipment, or automobiles, to structures such as houses, bridges, or oil refineries.

The drawings produced will provide contract documentation, showing the technical details of the products and structures and specifying dimensions, materials to be used, and procedures and processes to be followed.

Graduates of the new Drafting/CADD Diploma program will fill in technical details using drawings, rough sketches, specifications, codes, and calculations previously made by engineers,

surveyors, architects, or scientists. They will have well-developed communication and problem-solving skills and be able to work alone or in teams. Graduates of the certificated credential can choose to enhance their training by participating in a one-semester Co-op placement in an Engineering or Architectural office, fabrication shop, or manufacturing plant.

Graduates of the new Drafting/CADD Diploma program will have life long learning opportunities to upgrade and enhance their academic and technical skills through on going training in math, physics, technical communications, estimating, and construction supervision. They will also have opportunities to ladder into an accredited technology diploma or degree program by accumulating transferable credits.

Program Rationale:

A3. Provide rationale for the credential

With growing reliance on CADD, the manual skill of drafting is diminishing. Graduates are being challenged to be able to perform higher-level tasks that involve mathematic calculations, technical communications, and critical thinking. Employers have recognized a need for graduates to be able to acquire more advanced training that will enable them to participate in the design, as well as drafting, of Architectural and Engineering projects. Career advancement opportunities are also dependant on the graduate's communication and organization skills. This proposal enhances these skills by adding several courses in communications, office procedures, and advanced skills such as estimating and quality control.

This diploma credential will allow students to build on previous training and education to accumulate knowledge, experience and credits that will enable them to advance in their careers and pursue higher education. It will also allow previous Kwantlen Drafting/CADD certificate graduates and graduates from one-year Drafting/CADD certificate programs from other institutions to ladder into the second year of this program.

The outcomes in the Drafting/CADD certificate programs will provide skills required at the job entry level. The outcomes of the diploma will allow graduates to advance in their career. To gain promotions during employment, graduates must pursue upgrading in math, communications, physics and CADD skills, and this is included in this program giving them recognition and a credential associated with this upgrading.

Moreover, the Drafting/CADD certificate will have transferable credits so students wishing to pursue an accredited technology diploma or degree can benefit from their training in the Drafting/CADD Diploma program.

B. Program Description:

B1. State the goals and objectives of the new program

Key Goals of the program include the:

- Organization of course outlines to create outcomes-driven curriculum that is validated by industry and the Program Advisory Committee.
- Accumulation of academic credit.
- Recognition and certification of academic progress as it occurs.
- Utilization of lecture, small group, one-on-one, and hands-on lab experience.
- Provision of flexible access for students.
- Recognition of prior learning and work experience using appropriate assessments (PLAR).
- Recognition of previous academic credentials.
- Provision for student support processes and services.
- Opportunity for Co-operative Education within the program.
- Provision of a flexible career path which includes the opportunity for highly skilled graduates to continue into a degree program or accredited technology.

The objectives, as outlined in section A2, are supported by these goals and lead directly to the outcomes. These objectives are supported by BC Work Futures regarding Drafting/CADD Technicians and Technologists, indicating a need for continuing academic advancement:

> "Progressively fewer but more highly skilled technologists and technicians will be required to complete the same amount of drafting."
>
> "…those who have updated skills and knowledge have an advantage over others when competing for employment opportunities in these fields."

Information located (March 2006) at:
http://www.workfutures.bc.ca/profiles/profile.cfm?noc=225&lang=en&site=graphic

These objectives address academic and advanced skills such as mathematics, physics, technical communications, management and organization, as wells as training in 3-Dimensional parametric modeling software and Building Information Model (BIM) software that will give our graduates leading edge training in all Drafting/CADD disciplines.

B2. Identify the target student audience(s) for this program

Our target students will be 16 years of age and up with some or all of the following background:

- Secondary school graduates or equivalent, with or without drafting or CADD experiences, who meet the academic prerequisites for entry into the program.

- Have advanced credits from secondary school through the Career Technical Consortium (CTC) partnership program.
- Are working in industry, and wish to upgrade their qualifications for advanced positions.
- Have a trades background and are no longer able to work in a physical environment and are seeking an office career that will build on their past experience.
- Have a certificate in Drafting/CADD from Kwantlen or another post-secondary institute and wish to enter at the advanced certificate level.
- Have a degree and are seeking training and a credential in Drafting/CADD.
- Have a strong interest in Drafting/CADD.

B3. State how the institution satisfied itself that there is not unnecessary duplication in the system.

The current Drafting/CADD related Post-Secondary programs in BC exist in two categories:

1) **Vocational programs** (Prerequisites: Principles of Math 11, English 12) – focus on Drafting/CADD

2) ***Accredited technician and technology programs** (Prerequisites: Math 12, English 12, Physics 11) – focus on Specialty (Drafting/CADD is a component) (*Accredited by Canadian Technology Accreditation Board (CTAB))

The Comparison Chart in Appendix E demonstrates that the proposed program does not duplicate any existing Drafting/CADD related program in BC, but rather sits effectively between the existing Vocational and Academic (Accredited) programs.

The proposed program will be an Academic program with prerequisites that allow a broad accessibility, and with a focus on Drafting/CADD as it relates to a discipline, or specialty area. Math, English and Physics are built in to the diploma, allowing students access into accredited technologies if they choose.

One respondent in our PAC survey (Appendix B) states:

> "The program seems to fill the void in the education stream between a full technical school program (BCIT) and a program that simply trains lower level CAD 'drafters' "

Unique features of the proposed Drafting/CADD Diploma:

- Diploma built upon excellent Drafting/CADD skills with academic components.
- Prerequisites that allow entry to students that do not have a math/science background in secondary school. (Higher-level Math, Physics, and English are built in to the diploma).
- Program with transferable credits.
- Co-operative education work placement.
- Covers all disciplines in the Drafting/CADD industry.
- Multiple entry and exit points.

B4. Provide evidence of labour market demand

From BC Work Futures:

> **Employment Prospects**
>
> This is a large occupational group, made up of about 6,690 workers in B.C. in 2001. The Canadian Occupational Projection System (COPS) projects employment in this group will grow at an annual rate of 2.0%, which is faster than the average for all occupations. According to this projection, 2,830 positions will become available between 2001 and 2011. A little more than half of these openings will come from growth in the number of new positions and the remainder will come from the need to replace workers who retire.
>
> More than half of this group works in **professional business services**, where some employment growth is expected. A strong contribution to employment growth is also expected from **electrical and electronic products manufacturing**. Openings will also result from expansion in the **construction industry**.
>
> The Canadian Occupational Projection System (COPS) projects employment in this group will grow at an annual rate of 2.0%, which is faster than the average for all occupations. According to this projection, 2,830 positions will become available between 2001 and 2011. A little more than half of these openings will come from growth in the number of new positions and the remainder will come from the need to replace workers who retire.
>
> Drafting technologists and technicians make up the largest occupation in this group (58%). Employment in this occupation is projected to grow faster than the average for all occupations. Consequently, about 58% (1,630 in total) of the total projected openings are for positions in this field.

Information located (March 2006) at:
http://www.workfutures.bc.ca/profiles/profile.cfm?noc=225&lang=en&site=graphic
Emphasis added

Survey of Program Advisory Committee:

In a survey (Appendix B) conducted through our Program Advisory Committee (PAC) in March and April 2006, 100% of respondents said they strongly agreed or agreed that there is a need for such a program. There were 24 participants in the survey from six disciplines. In total they indicated that there will be a need for between 47 and 82 graduates in the next five years from a program like the one proposed. The respondents represent 21 companies. A graph of these responses can be found in Appendix B.

Many of the respondents indicated that they wish there was a program like the one proposed when they did their training, and some indicated that they would take the program, or courses in it, once the program is being offered.

Drafting/CADD Diploma graduates will work in the following areas:

- Municipal Engineering offices
- Consulting Engineering offices
- Architectural offices
- Film Industry (set-design)
- Construction companies
- Technical print shops
- Fabrication shops
- Manufacturing plants
- Process plants
    - Petro-chemical
    - Pulp and Paper
    - Mining
    - Wood products
    - Food and Drug

Further evidence of Labour Market Demand can be found in Appendix A.

C. Curriculum:

C1. Describe the skills, knowledge, or other attributes students will develop from the program

Program Overview

Semester One – Citation

Provides common skills and computer knowledge for options as well as an opportunity for current practitioners to upgrade skills and will exit at a Citation.

Semester Two – Certificate

Provides experience and skills suitable for entry to an occupational specialty area above entry level. Many students bring related experience in the industry, which prepares them for a higher-level entry. The exit point is a Certificate.

Semester Two with co-op – Certificate with Co-op

Option allows those who do not have industry experience to gain access to the offices and shops before leaving their studies to both apply course knowledge and review with instructors how to apply skills to the new working environment. This will give the graduate a Certificate with Co-op Option.

Semester Three – Advanced Certificate

Provides skills and experience that allows the graduate to extend and customize the underlying technology (computer application software applications such as AutoCAD, Microstation, Inventor, etc.) within the industry specialty area following industry practice and standards. This enables the graduate to interface the underlying technology with office and shop practice, and other installed technology. This specialty focus and in depth analysis of the technology creates unique knowledge of the drafting process within an office. Graduates will take academic courses to prepare for further studies and transfer to accredited technology programs or four year degree programs, such as BBA in Entrepreneurial Leadership, Applied Science or Applied Technology degrees.

Semester Four – Diploma

Provides the graduate with a Diploma and the ability to plan, estimate, and assist with management and supervision of small projects. The focus on an industry specialty area creates awareness of specific industry needs and requirements. They will complete their academic studies, receiving a Diploma, in preparation for moving into degree programs.

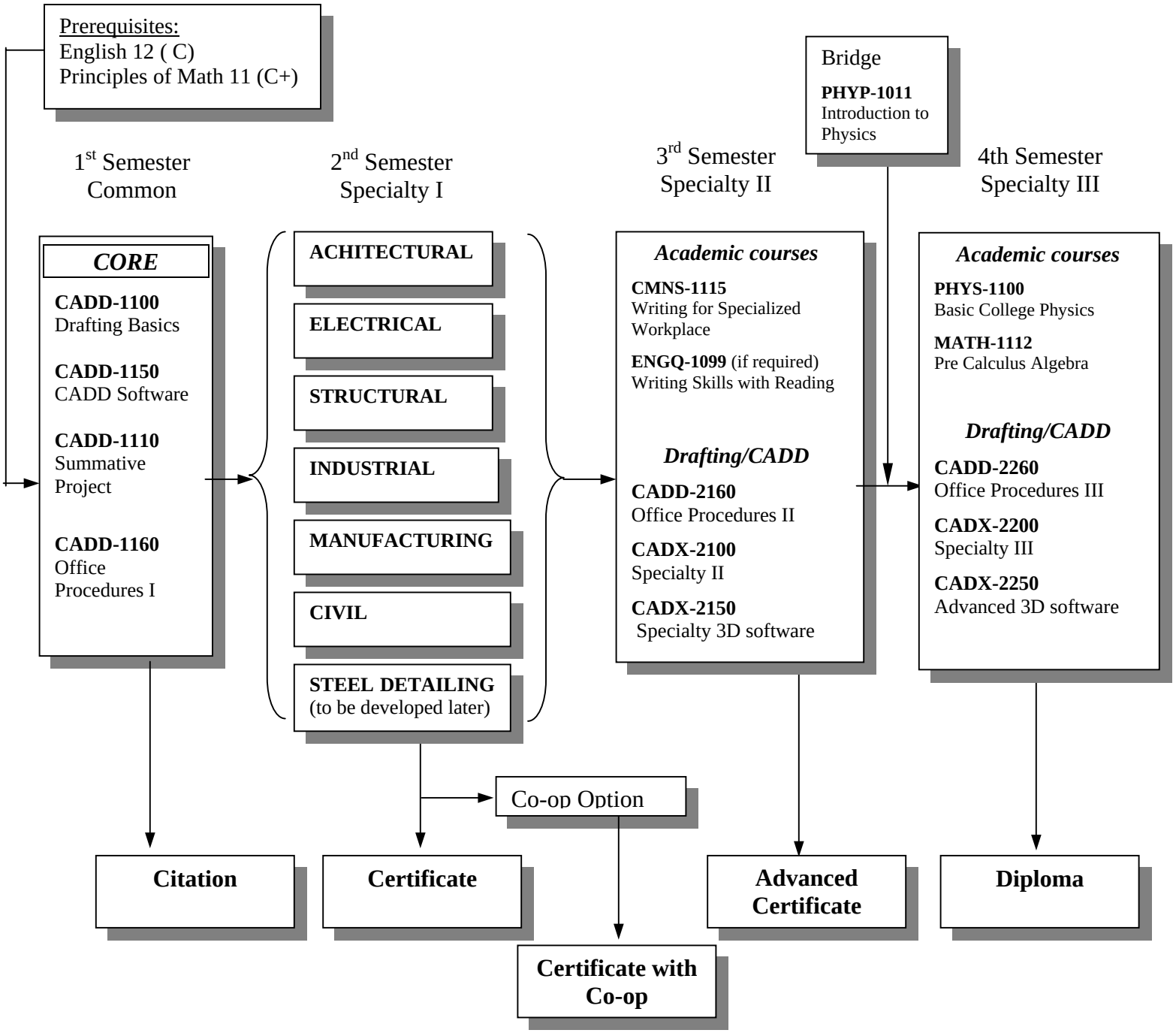
Outcomes and Essential Skills

A detailed description of the Outcomes in all the proposed courses is presented in Appendix C.

A list of Essential Skills that will be integrated into all the courses can be found in Appendix D

C2. Describe the program/course structure

The following illustrates the structure of the program:



CADD is the acronym for courses common to all Specialties (options)

CADX is a generic acronym representing Specialty courses

For actual Specialty course numbers see the Detailed Program Flow Charts of course numbers and descriptions in Appendix J.

C3. Identify the provincial, national and/or international certifications and standards achieved in the new program, if applicable

N/A

D. Program Consultations and Evaluation:

D1. List the other provincial post-secondary institutions consulted about the proposed program

BC Drafting Technologies Articulation Committee (BCDTAC)

The Concept Document for this program was presented at the 2004 Annual Meeting at University College of the Cariboo, Kamloops, BC, June 9, 2004. Discussion on the document and the potential for articulation was positive and the committee is interested in following this program closely.

Members:

Kwantlen University College
University College of the Fraser Valley (UCFV)
British Columbia Institute of Technology (BCIT)
North Island College (NIC)
Camosun College (CC)
Thomson Rivers University (TRU)
Okanagan College (OK)
Vancouver Community College (VCC)
College of New Caledonia (CNC)

Although there was no Articulation meeting in 2005 and 2006, contact is maintained with all interested institutions. In particular, preliminary versions of the Outcomes and Flowcharts were sent to TRU, NIC, UCFV, VCC and BCIT in April and September of 2006.

Walter Prescott, Co-ordinator Technology program, UCC (now Thomson Rivers University).

May 2003: In a discussion of technology versus certificate programs, Mr. Prescott agreed that Technology programs provide more opportunities for employment and growth in BC. Preliminary discussions regarding a possible articulation agreement that would enable Kwantlen Drafting/CADD Diploma graduates to ladder into the 3rd year of UCC's Technology Diploma were held at this time. (Mr. Prescott has been contacted in early April 2006 to keep him apprised of our progress).

Michael Whitmore, Instructor, Drafting/CADD Certificate program, North Island College
Tricia Thomson, Instructor, Architectural/Civil Drafting Program, UCFV

Attended the Steering Committee meeting April 22, 2004 at Kwantlen during which we presented the Concept Document for this proposed program. Letters of support from Mr. Whitmore and Ms. Thomson are included in Appendix F.

Provide a list and summary of the nature of all other consultations

There is an individual Program Advisory Committee (PAC) for each discipline (other Drafting/CADD certificate programs have one large multi-disciplinary PAC).
A list of PAC members can be found in Appendix G.

Kwantlen University College Drafting/CADD Technologies Program Advisory Committee (PAC) Meeting Schedule is as follows:

Date	PAC Activity
April 22 2004	Steering Committee meeting held for representatives from all specialty areas to present Concept Document for this proposal. Attendees were asked to fill out a survey regarding this proposed diploma program. (See Appendix B – PAC Survey)
April 16 2005	Steering Committee members assigned as PAC members to different specialties. Outlined activities involved in establishing the program and how industry in-put is vital to the development of the new program
February 2006	PAC members validated Core outcomes for the new diploma program via online feedback form. Comments from the PAC can be found in the Core Review (Appendix H)
March 9 2006	The **Structural PAC** determined the outcomes for the proposed Structural Drafting/CADD diploma program using a DACUM process.
March 14 2006	The **Industrial PAC** determined the outcomes for the proposed Industrial Drafting/CADD diploma program using a DACUM process.
March 16 2006	The **Architectural PAC** determined the outcomes for the proposed Architectural Drafting/CADD diploma program using a DACUM process.
March 23 2006	The **Electrical PAC** determined the outcomes for the proposed Electrical Drafting/CADD diploma program using a DACUM process.
March 30 2006	The **Civil PAC** determined the outcomes for the proposed Civil Drafting/CADD diploma program using a DACUM process.
April 13 2006	The **Manufacturing PAC** will determine the outcomes for the proposed Manufacturing Drafting/CADD diploma program using a DACUM process.
September & October 2006	Another series of specialty PAC meetings will take place to validate content for the new diploma program in order to write Course Outlines. Scheduled meeting dates are listed in Appendix I.

D2. State whether or not the program meets the program eligibility requirements as outlined at www.bcsap.bc.ca

Yes.

D3. Indicate what policies/procedures are planned for ensuring adequate depth and breadth of ongoing review and evaluation once the program has been implemented

Ongoing review and evaluation will take place primarily through our PAC. The PAC members will determine the frequency of meetings. They will meet at least once per year. Additional validation processes will be undertaken through ongoing industry consultation.

Kwantlen University College Policy B.12 (under review), Program Review, outlines the program review process. The Office of Institutional Analysis & Planning will routinely collect data and also provide student satisfaction and employment outcomes data through the provincial College and Institute Student Outcomes project survey administered each year to former students who have completed all or a significant portion of a program.

Formative ongoing reviews are conducted on a tri-annual schedule and this diploma will thus be reviewed every three years. The tri-annual Level One Review measures ten to twelve core indicators that cover the criteria that have been approved and stipulated by Kwantlen's Education Council. Each of these reviews is iterative and references previous reviews and recommendations. The committee conducting the Level One Review, or any member thereof, can recommend a Level Two Review. Thus, under the Kwantlen Policy, a "summative review" can be initiated during any three-year period.

At both levels of review the Program Review Team must include at least one faculty member, one staff member, and one external member. The policy allows for additional members in these or other categories.

The proposed diploma program is consistent with Kwantlen's current mission, goals and long term Strategic Plan. Uniquely fitted to the Strategic Plan, the program emphasizes citizenship, service and leadership as important areas of growth for students, consistent with Kwantlen's mission statement. The program reflects the core values of the Strategic Plan, and would contribute to the growing need for Drafting/CADD training in the Lower Mainland. The core indicators in each program review will measure how well the diploma continues to meet these objectives and values enunciated in the University College's mission, goals and strategic plan. The program review process allows for incorporation of the views of the same constituent groups and for their membership on review teams.

Numerous essential skills are woven throughout all courses at lower and upper levels of this diploma. Graduates' success in obtaining employment or admission to further education will be tracked by the program and by the Alumni Office. Attention will be paid to their progress in further studies or in a career. Student satisfaction with the program will be measured through the annual Students Outcome Project Survey data and by periodic surveys.

All information will be utilized in the tri-annual program reviews. The annual budget process, education plans, timetabling processes and monthly department meetings are ways in which the adequacy of and efficient and effective use of physical, technological, financial and human resources are monitored within and without the department. The Dean of the College of Trades and Technologies, in consultation with the department coordinator, will monitor the use of these resources in an ongoing fashion. This information will be used in the tri-annual reviews.

The Dean of the College of Trades and Technologies, in consultation with the department coordinator, will report annually on the continuing appropriateness of the program's structure, methods of delivery and curriculum. These annual reports will form part of the tri-annual review process and the rationale for any changes within any three-year period between reviews. Under Kwantlen's curriculum policy all courses are revised on a three to five-year schedule, approved by the department curriculum committee for transmission to the College of Trades and Technologies Curriculum Committees and ultimately to Education Council. Cumulative data on the types and number of revisions will form part of the body of information used in the tri-annual program reviews.

The Degree and Program Assessment Committee of Education Council also performs an Implementation Review at the end of the first cycle in which the diploma is offered.

Through the Co-operative Education option there will be frequent follow-up with employers to evaluate student performance. Also through the Co-operative Education option, returning students will provide feedback after their work experience.

The mix of returning and continuing students will encourage informal networking and feedback on employment trends to increase the applicability of the program.

D4. Indicate whether safety and other risk management factors have been addressed where appropriate

Kwantlen University College Policy G.22, Health and Safety, will apply.

Kwantlen University College's Newton and/or Cloverdale campus Occupational Health and Safety Committee will conduct ongoing inspections of the facilities. They will assess critical issues as well as general site conditions and housekeeping. They will make recommendations for facility and operation procedure deficiencies, priority of action, and the person or persons responsible for corrective action.

E. Admissions and Transfer:

E1. Indicate how the institution plans to ensure students' ability to access the program through transfer

Equivalent Drafting/CADD certificate programs that are eligible for block transfer status into the diploma program include: University College of the Fraser Valley, Vancouver Community College, BCIT, and North Island College. As well, we will pursue the following options:

Through articulation with BC Drafting Technologies Articulation Committee (BCDTAC) and other institutions, we will identify opportunities for graduates of a one-year Drafting/CADD certificate program to ladder into our second year.

Kwantlen University College is working with the secondary school system to promote early enrolment and transfer from high school to the college.

Prior Learning Assessment and Recognition, following current Kwantlen University College policy B.14, and Provincial standards, will be used extensively to place individuals with industry experience/certification at the appropriate training level in the career path for them to achieve maximum educational success.

Multiple entry points provide for easy transfer into any stage of this program provided the applicant has the necessary prerequisites.

E2. Describe how students will be able to transfer out of the proposed program into other programs within the same institution or at another institution

Academic credits provide students and graduates with many opportunities for advancement and further education into other diploma, accredited technology and degree programs at Kwantlen and other institutions.

The academic, non-Drafting/CADD courses in the third and fourth semester have been selected because Communications, English, Math and Physics are a large part of all Drafting/CADD related occupations.

- The program prerequisites will allow students to transfer or entrance into all trades programs
- The skills acquired in the Advanced Certificate will allow transfer or entrance into accredited technology programs.
- The skills acquired in the Diploma will allow transfer or entrance into all First Year University Transfer programs.

E3. Indicate how students will be able to transfer into related degree-level programs, if applicable

The academic, non-Drafting/CADD courses in the third and fourth semester are placed to enable graduates to continue on into ENGL-1100 (required for all degree programs at Kwantlen) and to continue on into PHYS-1120 and MATH-1120, which are both part of the Applied Science program.

F. Other:

F1. Include any additional information not addressed in the sections above that may be helpful in better understanding the major components of the proposal

Multiple Specialties

The modular design allows a student at the Certificate level (Complete semester 2) to undertake a second industry specialty option. It is the expectation that a significant number of students will opt to take a second certificate rather then the advanced certificate directly, increasing their chances for employment at the certificate level because they can transfer between industry specialty areas.

Other related benefits:

- Availability of upgrading opportunities reinforces the life-long learning and long term educational planning.
- Contact with employers prepares students for successful transition to full employment.
- Employment while pursuing their learning plan allows economic benefits for local municipalities and society as a whole.
- Employment skills gained in the program will prepare students for a multitude of roles in the working world. After upgrading of their own volition, our graduates from the current certificate program have advanced to:

  Customer Service

  Production management

  Marketing

  Construction site supervision

  Design

  Project management

Appendix A

Labour Market Demand

Growth in the Construction and Technical Services Industry

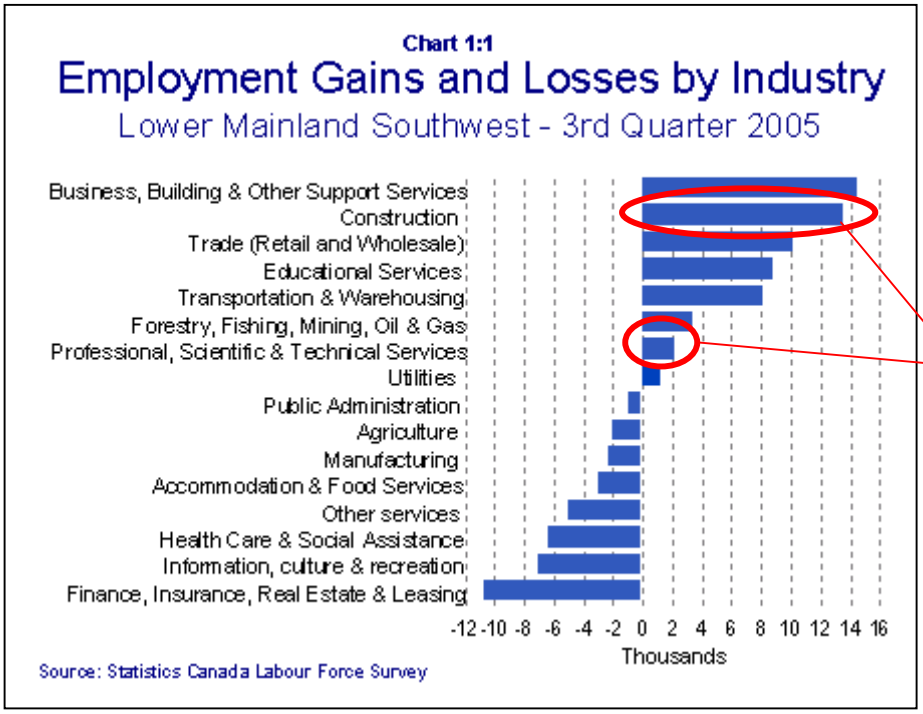
LOWER MAINLAND SOUTHWEST BC - LABOUR MARKET BULLETIN - 3Q05

Lower Mainland Southwest BC - Labour Market Bulletin - 3rd Quarter 2005

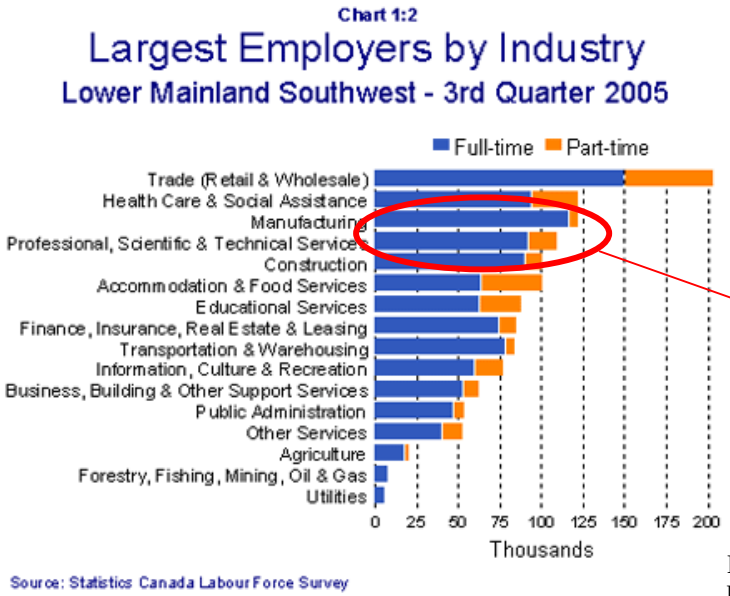
Employment and Labour Force Trends

The employment picture continues to be positive in the Lower Mainland Southwest. According to the Labour Force Survey (LFS) by Statistics Canada, 31,000 full-time jobs were added and just over 5,000 part-time jobs were lost over the third quarter, bringing the net gain to 26,000 jobs, a 2% increase over the same period last year.

The upward trend continues to be driven by Construction, which added 13,700 jobs this quarter, almost all of them full-time. This was exceeded by Business, Building and Other Support Services, an industry which has a large employee base in building management and benefits directly from construction growth. This industry added 14,600 new jobs, over 92% of them full-time.



Growth in Construction and Technical Services indicates a growth in need for Drafting/CADD Services



Manufacturing, Technical Services and Construction all require Drafting/CADD Services

Information located (March 2006) at:
http://www.hrsdc.gc.ca/en/bc-yk/5615/jwtc/lmi/lmr3q05.shtml#1

Growth in the Business Services Industry

Between 1984 and 1999, business services doubled its share of total employment in the province. In 1984, less than 5% of the work force was employed in these industries. By 1999, one in every 11 workers (9%) had a job in a business service industry.

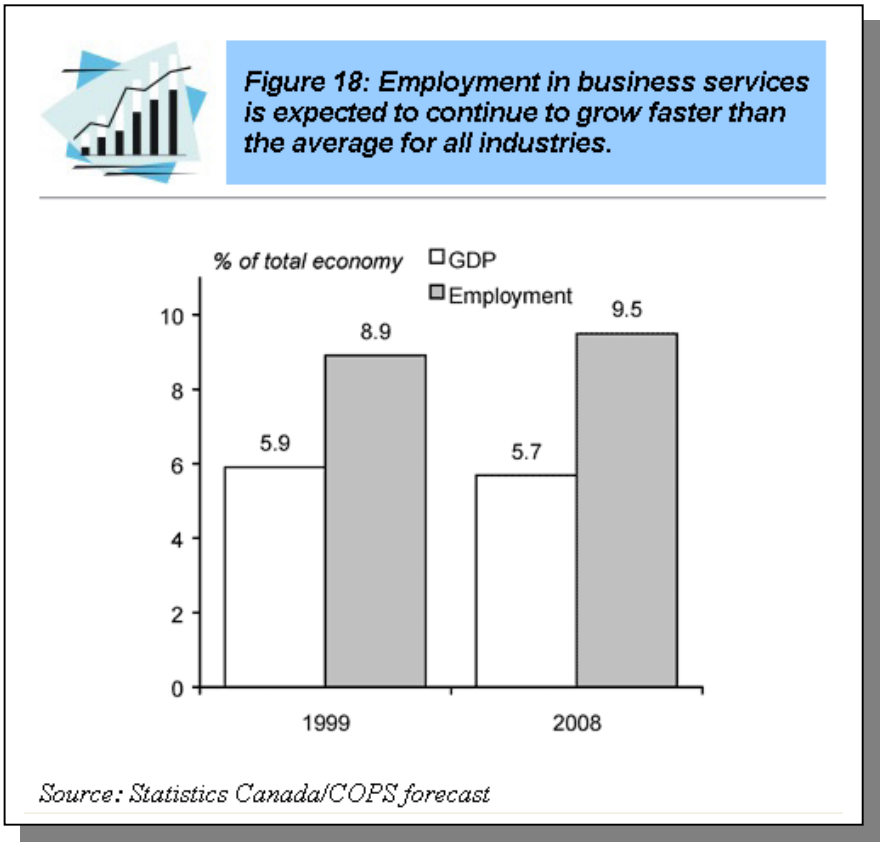
Source: Statistics Canada

Engineering offices, architects, and computer business employ a lot of people with training or skills in the area of natural and applied sciences. People working in these types of occupations make up nearly a quarter (23%) of the work force in the *Business Services Industry*.

Source: COPS estimate (1998)

During the next few years, it's forecast that employment growth in the *Business Services Industry* will continue to outpace gains in the economy as a whole. The industry is forecast to employ nearly a tenth of the work force by 2008, increasing its share of total employment by more than half a percentage point. However, GDP growth isn't expected to keep pace with the rest of the economy, and as a result it's anticipated that output in this industry group will represent a slightly smaller share of the total (5.7%) in 2008 than it did in 1999 when its share was just under 6%.

Source: Statistics Canada/COPS forecast



Information located (March 2006) at:
http://www.guidetobceconomy.org/chap5/chap5-4.html

New Report: B.C.'s high-tech sector records above average growth

Vancouver, B.C., January 30, 2006 – British Columbia's high-tech industry continues to make significant contributions to a hot B.C. economy, increasing revenues, paying high wages and generating new companies. These are a few of the findings of the 2005 edition of Profile of the British Columbia High Technology Sector, released by Leading Edge BC and BC Stats today.

NAICS	Industries Proposed for Inclusion in High Tech Sector Definition	Share of possible votes
511210	Software Publishers	100%
334512	Measuring, Medical and Controlling Devices Manufacturing	87%
334210	Telephone Apparatus Manufacturing	80%
334410	Semiconductor and Other Electronic Component Manufacturing	80%
334511	Navigational and Guidance Instruments Manufacturing	80%
335990	All Other Electrical Equipment and Component Manufacturing	80%
417320	Electronic Components, Navigational and Communications Equipment and Supplies	75%
541710	Research and Development in the Physical, Engineering and Life Sciences	75%
541510	Computer Systems Design and Related Services	75%
334110	Computer and Peripheral Equipment Manufacturing	73%
334220	Radio and Television Broadcasting and Wireless Communications Equipment Manufacturing	73%
335315	Switchgear and Switchboard, and Relay and Industrial Control Apparatus Manufacturing	67%
325410	Pharmaceutical and Medicine Manufacturing	67%
336410	Aerospace Product and Parts Manufacturing	67%
334290	Other Communications Equipment Manufacturing	60%
339110	Medical Equipment and Supplies Manufacturing	53%
334310	Audio and Video Equipment Manufacturing	53%
335920	Communication and Energy Wire and Cable Manufacturing	53%
514210	Data Processing Services	50%
541620	Environmental Consulting Services	50%
417310	Computer, Computer Peripheral and Pre-Packaged Software Wholesaler-Distributors	50%
443120	Computer and Software Stores	50%
541330	Engineering Services	50%
621510	Medical and Diagnostic Laboratories	50%

Information located (March 2006) at:
www.leadingedgebc.ca

Leading Edge BC is a not-for-profit marketing and investment attraction organization

Appendix B

Program Advisory Committee (PAC) Survey
March – April 2006

Kwantlen UNIVERSITY COLLEGE

24 Participants from 21 companies

Survey of Program Advisory Committee - March/April 2006

Drafting/CADD Diploma

There is a need for this kind of program in Industry

	1 2 3 4 5 6 7 8 9 10 11 12 13 1 14 15 16 17 18 19 20 21 22 23 24 25
Strongly Agree	
Agree	
Somewhat Agree	
Disagree	
Strongly Disagree	

There is an anticpated need in our company (over the next 5 years) for graduates from this kind of program

	1 2 3 4 5 6 7 8 9 10 11 12 13 1 14 15 16 17 18 19 20 21 22 23 24 25
None	
1 -2 graduates	11 to 22
3 - 5 graduates	30 to 50
6 - 10 graduates	6 to 10
10+ graduates	more than 10

Total: Between 47 and 82 graduates will be required by these 21 companies in the next 5 years

Feedback from Program Advisory Committee (PAC) members after meeting

PAC Member	There is a need for graduates from this kind of program in industry	There is an anticipated need in our company (over the next 5 years) for graduates from this kind of program	The multiple entry/exit points will be a benefit to employers (life long learning for employees)	The Co-op option will be a benefit to employers	Our company would consider providing a Co-op placement opportunity for students	I think the Program Advisory Committee (PAC) validation process is a good way to determine program outcomes	General Comments
Linda Rutland-Petch (Civil)	Strongly Agree	3 – 5 graduates	Strongly agree	Strongly Agree	Yes	Strongly Agree	
Kelly Wightman (Civil)	Strongly Agree	3 – 5 graduates	Agree	Strongly Agree	Yes –	Strongly Agree	
Anthony Triemstra (Civil)	Agree – Yes, it is hard to find Civil students	1 –2 graduates We need them now!!	Agree	Somewhat Agree	I do not have authority to make decision but will pass it to someone who does	Agree	It was a good meeting
Grant Harder (Civil)	Strongly Agree	3 – 5 graduates	Agree Looking forward to staying current in the field myself.	Strongly Agree	Yes	Strongly Agree	
Steve Matheson (Electrical)	Strongly Agree	1 - 2 graduates based upon staff turnover (more and more design drawings are being farmed out to consulting firms)	Agree Due to industry specialization many employers look for students to have a sound basic knowledge then give them specific on-the-job training	Agree	I do not have authority to make decision but will pass it to someone who does	Strongly Agree	
Chris Chadwick (Electrical)	Agree It is important to have students graduating with this knowledge to fit into a company with minimal downtime	More than 10 graduates With the steady growth of *our company* in the future and now, we will have a need for students with this training	Agree Good for references and keeping with industry standards	Agree	I do not have authority to make decision but will pass it to someone who does	Strongly Agree This is a great way to mold the students to meet our needs	
Rick Tucker (Electrical)	Strongly Agree	1 – 2 graduates Getting busy, hard to find qualified people	Agree	Agree	Yes Need help to cover vacation times, high work load times	Strongly Agree	
Louis Kardosi (Electrical)	Strongly Agree The more skills that meet industry applications the better	3 – 5 graduates	Strongly Agree	Strongly Agree	Yes	Strongly Agree	

Feedback from Program Advisory Committee (PAC) members after meeting

PAC Member	There is a need for graduates from this kind of program in industry	There is an anticipated need in our company (over the next 5 years) for graduates from this kind of program	The multiple entry/exit points will be a benefit to employers (life long learning for employees)	The Co-op option will be a benefit to employers	Our company would consider providing a Co-op placement opportunity for students	I think the Program Advisory Committee (PAC) validation process is a good way to determine program outcomes	General Comments
Nicole Moeller (Electrical)	Strongly Agree Having seen many drawings from many companies, I can say that the more education about drafting, the better. Industry is moving very fast, people with the ability to learn on the job with a strong basic skill set will be greatly appreciated	3 – 5 graduates we need these people now	Agree Depending on the time of day, this can be great for people moving between disciplines	Somewhat Agree Smaller companies will benefit from Co-op, but may teach poor drafting. Good for office experience	I do not have authority to make decision but will pass it to someone who does With so may clients, it would be difficult to provide a good learning environment for shot term	Strongly Agree People in industry see the problems day to day	
Fred Suchdolski (Industrial)	Strongly Agree	6 – 10 graduates	Somewhat Agree	Agree		Strongly Agree	
Dave Parker (Industrial)	Agree	1 – 2 graduates	Somewhat Agree	Somewhat Agree The Co-op program requires extra resources from employer	I do not have authority to make decision but will pass it to someone who does	Agree	
Wes Elias (Industrial)	Strongly Agree With the workforce shrinking man-wise, I believe this to be a very valuable program	1 – 2 graduates (possibly)	Agree	Agree	Yes	Strongly Agree	
Graham Bolenback (Industrial)	Strongly Agree	3 – 5 graduates	Strongly Agree	Agree	I do not have authority to make decision but will pass it to someone who does	Strongly Agree	
Rick Hoegler (Industrial)	Strongly Agree This format and content reflect what industry needs	1 – 2 graduates (based on past employers)	Strongly Agree Provides flexibility to have the opportunity to provide employees with graduated training and succession planning tools	Strongly Agree	I do not have authority to make decision but will pass it to someone who does	Strongly Agree Allowing input from the industries keeps educational programs up to date with the latest requirements of the ever-changing business world.	I feel it has been a great experience to be a part of the input process that will help my industry and business in the long run.

Feedback from Program Advisory Committee (PAC) members after meeting

PAC Member	There is a need for graduates from this kind of program in industry	There is an anticipated need in our company (over the next 5 years) for graduates from this kind of program	The multiple entry/exit points will be a benefit to employers (life long learning for employees)	The Co-op option will be a benefit to employers	Our company would consider providing a Co-op placement opportunity for students	I think the Program Advisory Committee (PAC) validation process is a good way to determine program outcomes	General Comments
Farshid Rafiei-Anaraki (Architectural)	Strongly Agree	3 – 5 graduates	Strongly Agree	Strongly Agree	I do not have authority to make decision but will pass it to someone who does	Strongly Agree	
Dimitri Harvalias (Architectural)	Strongly Agree The program seems to fill the void in the education stream between a full technical school program (BCIT) and a program that simply trains lower level CAD 'drafters'	None I am a self-emloyed Designer and CADD Trainer and do not anticipate growing my business to the point where hiring others wourd be required for the next five years. Some of the firms I consult to could benefit from the knowledge to be gained by graduates from this proram	Strongly Agree The ability to hire graduates with varying skill levels, as well as the ability to provide employees with the option of upgrading their training at a variety of stages is a very attractive option to both employees and employers	Strongly Agree	I do not have authority to make decision but will pass it to someone who does	Strongly Agree The needs of industry are best understood by those in industry. The fact that the comments made by the PAC are being considered and responded to are an indication to me that those developing the program understand the need to consult industry regarding what they require from the program and those who graduate.	
Inderjit Dhillon & Hasmin Balce (Archtectural)	Strongly Agree Business is booming. We're always in need.	1 –2 graduates 1 to 2 workers find work and advancement elsewhere after a few years with us.	Strongly Agree We plan on taking the program ourselves	Strongly Agree The work experience is always good.	Yes We want to help the students in that way.	Strongly Agree Updates on what's happening in the industry as time progresses are good during the process. We should do this validation periodically (for 2010 Olympics etc)	
Frank Zander (Manufacturing)	Strongly agree I like the idea of a path toward a diploma and degree	1 –2 graduates	Agree	Strongly agree	Yes	Strongly agree	Well thought out!
Dave Perry (Manufacturing)	Strongly agree	3 – 5 graduates	Agree	Agree	Yes	Strongly agree	Industry must drive the educational system
Yifeng Xu (Manufacturing)	Strongly Agree	1 – 2 graduates	Strongly Agree	Agree	Yes	Strongly Agree	Excellent process to determine outcomes of courses

Feedback from Program Advisory Committee (PAC) members after meeting

PAC Member	There is a need for graduates from this kind of program in industry	There is an anticipated need in our company (over the next 5 years) for graduates from this kind of program	The multiple entry/exit points will be a benefit to employers (life long learning for employees)	The Co-op option will be a benefit to employers	Our company would consider providing a Co-op placement opportunity for students	I think the Program Advisory Committee (PAC) validation process is a good way to determine program outcomes	General Comments
Paul Ritter (Manufacturing)	Strongly Agree The over abundance of University graduates has left a significant void in qualified drafting technicians & CADD support personnel	1 –2 graduates Growth has exceeded our expectations so 1 – 2 is a conservative guess	Agree	Agree Frankly, a CADD slave over the summer months would be a huge benefit!	I do not have authority to make decision but will pass it to someone who does It has been discussed but action not yet taken, while I don't have authority – my suggestion is likely to be approved at which point I will have the ability to proceed	Agree An excellent evening – learned a lot and enjoyed contributing to the process	
Anne Tomlinson (Structural)	Strongly Agree	1 – 2 graduates	Strongly Agree		I do not have authority to make decision but will pass it to someone who does	Agree	
Mike Haggarty (Structural)	Strongly Agree	3 – 5 graduates	Strongly Agree	Agree The learning curve is steep. I would expect some employers would find this a drain of resources. But, the student would benefit greatly.	Yes	Strongly Agree The industry is changing at a fast pace. With respect to the instructors, they cannot hope to be current in a field they don't presently work. Unless people in the industry guide the education of those coming into the workforce, how can the University stay current?	

Feedback from Program Advisory Committee (PAC) members after meeting

PAC Member	There is a need for graduates from this kind of program in industry	There is an anticipated need in our company (over the next 5 years) for graduates from this kind of program	The multiple entry/exit points will be a benefit to employers (life long learning for employees)	The Co-op option will be a benefit to employers	Our company would consider providing a Co-op placement opportunity for students	I think the Program Advisory Committee (PAC) validation process is a good way to determine program outcomes	General Comments
Rick Kirkham (Structural)	Agree	None *The company I work for* does not hire graduates. Most drafters in this Company have over 20 years experience. This appears to be a company policy. I do not agree that this is the best way but I have no control over hiring.	Disagree I feel that as long as there is enough work in industry the best training is on the job. Kwantlen should provide upgrades to computer \ Autocad skills so employees can upgrade computer skills during slow times.	Somewhat Agree I feel it takes a few months before a company benefits from having a junior. The only advantage to the company is a weeding out process to find a valuable employee from a student placed in their midst. The disadvantage is having to train a student and then loosing them.	No As above this company does not hire recent graduates	Agree Program outcomes can be written so that the meaning is too vague to judge.	
Jos Arpink (Structural)	Strongly Agree	3 – 5 graduates	Somewhat Agree *See comments below	Agree	Yes – we would consider a Co-op placement on a case by case basis	Strongly Agree The PAC process has been, and continues to be, worthwhile. I applaud the faculty for reaching out to industry in the development of its curriculum. I also think it's incumbent on the institution to be represented at industry events, such as Autodesk University, if that is not already the case.	** See comments below

*I think 4 levels of certification for this 2-year program are too many, and will be confusing for employers. I would favour only 2 exit points, one at the end of the 2nd semester (year 1), and another at the end of the 4th (Year 2), with the student earning either a Certificate, or a Diploma, respectively. Intermediate semesters would count for credit towards the next level of certification, or be a bridge to the Engineering Technology program, as might be the case after the 3rd semester. I would not consider only the 1st semester as sufficient in our evaluation of a prospective entry-level employee.	**The proposed program needs greater emphasis on BIM (Building Information Modeling), as this will replace 2D CAD in the workplace. I believe this transition will be substantially underway, in our industry, by the time the first students graduate from this program in 2008 or 2009. I look forward to seeing this introduced at future PAC meetings, and being able to lend continued support to the program.

Appendix C

Course Outcomes

(Note: Courses marked ‘New’ are under development and may change)

Semester 1 – Common Core

Common Courses

CADD-1100 Drafting Fundamentals – 4 cr (New)
Students will set up drawings and use geometric construction and appropriate line-types to produce orthographic and pictorial representations of models. They will use projection techniques to construct intersections and developments of various three dimensional shapes. Students will apply sections and conventions and use details to enhance the representation of models. They will apply annotation and dimensions to describe the models. Students will fill in title blocks and use quality control procedures to complete drawings.

CADD-1110 Summative Project – 4 cr (New)
Students will follow the design process and use sketches, standards and codes to produce a complete multi-sheet set of drawings. They will identify the type and purpose of all drawings that make up a full set. Students will identify the components that make up the project, and their materials. They will create plans, elevations, sections and pictorial drawings, and extract details. Students will apply section and detail symbols, dimensions, and annotation to industry standards. They will select appropriate scales and produce a drawing index, legend, and bill of materials.

CADD-1150 CAD I – 4 cr (New)
Students will operate CADD software and construction techniques to create, modify and edit objects. They will manage object properties to create layers, text styles and dimension styles. Students will utilize blocks, attributes, hatching and page layouts to demonstrate presentation techniques. They will use CADD software to perform analytical calculations, and to import and export data using external references and other techniques.

CADD-1160 Office Procedures I – 3 cr (New)
Students will use MS Word, Excel and PowerPoint to interact with CADD software to exchange data and graphics. They will follow basic office procedures to produce memos, change orders, and to follow document control and revision procedures. Students will investigate a variety of disciplines in the Drafting/CADD field and write a report or give a presentation on the discipline of their choice

Semester 3 – Specialty II

Common Courses

CMNS-1115 Writing for Specialized Workplace – cr 3
Students will learn how to analyze audience and context in order to communicate effectively in specialized workplace environments which require sensitivity and the ability to tailor messages for audiences with different, often conflicting, needs and priorities. They will learn basic communication and research strategies, document conventions, teamwork strategies, resume design, page design for specialized document creation, conflict resolution approaches, and correct language usage.

ENGQ-1099 Writing Skills with Reading - cr N/A
Students will study and practise the process of composition (including brainstorming ideas, thesis creation, composing an outline, writing a draft, revising a draft, editing and proofreading). They will acquire, review and practise grammar skills. Students will practise writing in response to reading critically. They will apply the writing process to the composition of paragraphs and short essays.
(NOTE: Students must take this course if they do not have English 12 with a B)

CADD-2160 Office Procedures II – 4 cr (New)
Students will identify the need for document control and create and use document control tools. They will participate in a design and document change-manage process in a simulated project environment. Students will set up controls for revision and transmittal procedures. They will follow design ethic principles and describe appropriate office deportment. Students will describe the effects of office ergonomics. They will plan and run meetings. Students will apply algebraic concepts and methods, and trigonometric functions, to solve problems.

Bridging Course

PHYP-1011 Introduction to Physics – 4 cr
Students will learn the basic concepts and formulae of classical physics in the areas of motion, forces, energy and electricity. Students will apply these concepts in solving problems and in lab work.

Semester 4 – Specialty III

Common Courses

MATH-1112 Pre Calculus Algebra – cr 3
Students will study the concept of function in depth. In particular they will study polynomial, rational, exponential, logarithmic and trigonometric functions, and their graphs.

PHYS-1100 Basic College Physics – 4 cr
Students in this survey course will study kinematics and dynamics in one and two dimensions, energy and momentum conservation, electricity and magnetism, waves, and geometric optics. In the lab students will also study basic techniques of measurement, including the use of computers, and report writing

CADD-2260 Office Procedures Plus – 2 cr (New)
Students will identify the roles Engineering and Architectural professionals and interactivity between departments. They will explain liability issues, and describe when it is advantageous to hire a professional. Students will follow quality assurance and management procedures, apply the physical characteristics of construction materials and use physical science during the design process. They will do estimating and follow construction procedures to complete a project.. Students will explain basic project management principles. They will define derivatives and integrals in the application the principles of limits to solve problems.

Architectural Outcomes for Drafting/CADD courses as validated by Architectural PAC
March 16 2006 (all courses are New)

Semester 2

CADA-1200 – Architectural Fundamentals – Credits: 4
Students will apply architectural theory, explain the architectural development process, and explain the design process. They will identify codes and standards and identify construction materials and methods. Students will describe types of building members and their applications.

CADA-1210 – Single-Family Residential – Credits: 4
Students will prepare a site plan, floor plans, and a foundation plan for a single-family residential building. They will prepare framing schematics, sections and details, and exterior elevations. Students will develop schedules and present the project.

CADA-1220 – Commercial – Credits: 4
Students will explain storefronts and glazing systems. They will develop the site plan, floor plan, foundation plan and roof system for a commercial building. Students will develop the cross-section and details, and develop commercial schedules. They will present the project.

CADA-1250 – Building Information Model (BIM) Software – Credits: 4
Students will identify 3D software for each discipline, and identify types of 3D Architectural software. They will use software menus and tools and apply viewing commands to draw walls, place windows and doors, and stairs with railings. Students will select floor and roof assemblies, place structural members and manage the model. They will produce a set of contract drawings with annotation and dimensions, and investigate analysis areas. Students will explore presentation tools.

Semester 3

CADA-2100 – Multi-Family Residential – Credits: 4
Students will describe multi-family dwellings and identify regulations and project standards, Students will develop the site plan, floor plans, foundation plan and roof plan. They will develop framing plans, sections details and elevations. Students will develop schedules and present the multi-family complex project.

CADA-2150 – Building Information Model Software (BIM) – Project Lab – Credits: 4
Students will use BIM software to prepare a commercial or residential building. They will evaluate the project and determine a procedure to complete it. Students will write a report and give a presentation outlining the procedure. They will create standards and produce a 3 dimensional model of the building. Students will identify and generate all required orthographic views, sections, elevations and details of the building with dimensions and annotation. They will give a presentation of the completed project, and write a summary report.

Semester 4

CADA-2200 – Residential/Commercial (Multi-Use) – Credits: 3
Students will describe multi-use complexes and identify regulations and project standards. They will identify energy and cost effective construction methods. Students will develop site plan, floor plans, foundation plan and roofing plans. They will develop sections, details, and elevations. Students will prepare schedules and present the project.

CADA-2250 – Advanced Building Model Information (BIM) Software – Integrated Systems– Credits: 3
Students will identify all systems in a building model and explain the relationships between them. They will write a design research paper explaining the architectural, structural, mechanical, electrical and HVAC systems, and prepare and present a project proposal. Students will create standards and apply integrated systems to a project. They will prepare a summary report of the project and give a report on the complete project.

Outcomes for Civil Drafting/CADD courses as validated by Civil PAC – March 30 2006
(all courses are New)

Semester 2

CADC-1200 – Civil and Surveying Fundamentals – Credits: 4
Students will describe the Civil discipline, apply surveying fundamentals and identify measurement systems. They will interpolate contours and perform cut and fill calculations. Students will perform a survey, identify existing surveying monuments and legal information, and follow land registry procedures. They will describe automated surveying equipment and prepare a base drawing from data.

CADC-1210 – Land Development Subdivision – Credits: 4
Students will list project drawings and their purpose, and identify codes and applicable design guidelines. They will prepare existing and proposed base plan, layout proposed roads and typical sections, and layout proposed utilities. Students will create a profile and sections, and design proposed surface grading. They will prepare cover sheet, index and site plan, and notes and specifications. Students will prepare construction and “as-built” drawings.

CADC-1220 – Structures – Credits: 4
Students will identify soils characteristics and apply structural design principles. They will identify types of structures in the Civil discipline, collect relevant information and layout a general arrangement. Students will prepare approach span, main span and structural supports for a bridge. They will determine the clearance envelope, prepare an expansion joint, and prepare construction drawings. Students will identify components in an existing bridge.

CADC-1250 – Land Development Software – Credits: 4
Students will identify 3 dimensional and advanced software for all drafting disciplines. They will set up projects and use menus and tools. Students will bring in points from a survey, layout legal boundaries and parcels, and build a topographic model of existing features. They will build a digital terrain model (DTM), establish horizontal alignment for roads, and calculate volumes. Students will build a design surface, add labels, and build a subdivision.

Semester 3

CADC-2100 – Transportation – Credits: 4
Students will identify Canadian Road and Transportation classifications and design guidelines for road systems. They will determine land acquisition requirements and develop horizontal and vertical alignments. Students will perform geometric calculations for roads, develop a road drainage system, and prepare working drawings for roads. They will apply intersection and auxiliary lane design. Students will apply regulations for railway crossings.

CADC-2150 – Civil Design Software – Credits: 4
Students will use Civil Design menu and tools and prepare a horizontal road alignment and a profile. They will apply a roadway template, prepare piping systems, and use a grading object. Students will create proposed terrain models and a surface drainage system. They will use sheet manager to output drawings.

Semester 4

CADC-2200 – Mapping and Geographic Information Systems (GIS) – Credits: 3
Students will use mapping terminology and definitions and explain coordinate systems. They will explain map projections, describe mapping systems, and explain Global Positioning Systems (GPS). Students will explain the fundamental concepts of GIS and use GIS terminology and definitions. They will explain the application of GIS software and identify disciplines that utilize GIS. Students will use file and database systems, collect data, explain data analysis and describe trends in GIS technology.

CADC-2250 – Mapping and GIS Software – Credits: 3
Students will use menus and tools, import data, apply object data and assemble maps. They will import images, set up projects, and use spatial data tools. Students will use querying tools, edit multiple source drawings, and apply coordinate systems. They will import external databases, plot and view maps, and export data.

Outcomes for Electrical Drafting/CADD courses as validated by Electrical PAC – March 23 2006
(all courses are New)

Semester 2

CADE-1200 – Electricity and Wiring Diagrams – Credits: 4
Students will define electricity fundamentals and solve electrical problems using Ohm's Law. They will describe electrical conductors and circuits and electrical circuit connections in series and parallel circuits. Students will identify wiring diagram components and symbols, and prepare basic commercial and industrial wiring diagrams. They will describe the function of relays, prepare ladder diagrams, and describe the function of protective relays. Students will identify power distribution equipment, prepare one-line diagrams, and prepare process and control diagrams. They will electrical codes and standards.

CADE-1210 – Electrical Schematics and Equipment Grounding – Credits: 4
Students will use standard symbols and prepare starter schematics. They will prepare schematics for non-reversing and reversing starters. Students will prepare motor control center (MCC) block diagrams and general arrangement. They will describe building, equipment, and instrumentation grounding systems. Students will prepare typing grounding layout and legend for a large industrial installation, and compose a grounding legend for fence.

CADE-1220 – Lighting – Credits: 4
Students will describe the light radiation spectrum and use lighting terms and definitions. They will identify light sources and basic lamp construction, select luminaries, and apply principles of appropriate illumination. Students will differentiate luminaire classifications, perform lighting calculations, and describe lighting and appliance branch circuits. They will define lighting and applicance panel boards, select lighting transformer, and perform lighting transformer calculations. Students will select primary and secondary circuit conductors, determine primary and secondary protection for transformer circuit, and design relay panels. They will prepare lighting layout for an industrial installation, prepare TMP lighting layout and conduit distribution system, and compose luminaire schedules. Students will design lighting panel and one-line diagram and prepare associated mounting details.

CADE-1250 – Electrical Lighting Software – Credits: 4
Students will use the Electrical Lighting software inter face and viewing commands. They will determine boundaries and size of the area to be lighted, specify the type of ceiling required, and determine the type of lighting fixtures to be used. Students will determine the illumination level, light loss factor, and utilization of coefficient. They will perform lighting calculations and determine quantities and layout of lighting.

Semester 3

CADE-2100 – Cable Trays – Credits: 4
Students will define the cable tray system, identify types of cable trays and components, and list standard cable tray sizes. They will explain rules for layout of cable trays, describe the cable tray support system, and prepare standard drawings for cable tray layouts. Students will prepare a cable tray layout for an industrial application and cross-reference related drawings for interference. They will prepare related cable tray details and cable tray legends.

CADE-2150 – Building Information Model (BIM) for Electrical Applications – Credits: 4
Students will use the Building Information Modeling (BIM) software interface and viewing commands and apply element styles and standards to place and modify electrical elements. They will perform material take-offs and support electrical entities. Students will output 2 dimensional (2D) and (3D) drawings and apply legends and tables.

Semester 4

CADE-2200 – Control Panels – Credits: 3
Students will define a control panel and its applications, identify the function of Control/Panel devices, and describe location of control devices. They will use standard symbols for panel devices, define wiring diagrams for panel devices, and assemble a panel layout. Students will prepare a control panel layout, prepare a schedule for panel components, and prepare a legend plated schedule. They will prepare control panel drawings and describe basic programmable logic controllers (PLC).

CADE-2210 – Programmable Logic Controllers (PLC) – Credits: 3
Students will define a programmable logic controller, identify the correlation between a logic diagram and PLC, and describe the advantages of PLC over hard wiring components. They will identify individual components of a PLC system and describe the relationship between components. Students will describe the programmer (?), identify types of drawings required for a PLC system, and create an electrical process sequence from logic diagrams. They will prepare PLC drawings.

Outcomes for Industrial Drafting/CADD courses as validated by Industrial PAC - March 14 2006
(all courses are New)

Semester 2

CADI-1200 – Industrial Fundamentals – Credits: 4
Students will identify industrial processes and codes and standards. They will describe industrial design development, identify information from external resources, and describe types of drawings. Students will prepare a flow chart and a general arrangement, and identify materials handling equipment and components. They will identify piping equipment and components, and participate in industrial field trips.

CADI-1210 – Transfer Deck and Conveyor – Credits: 4
Students will identify types of transfer decks, apply design criteria, and identify design principles to prepare a transfer table. They will identify types of conveyors, draw and detail a belt conveyor, and prepare chute details. Students will apply appropriate drafting practice

CADI-1220 – Process Piping – Credits: 4
Students will prepare piping and instrumentation diagrams, layout a general arrangement, and prepare details of piping equipment. They will develop pipe routing and follow design principles to output piping orthographics and isometrics. Students will produce isometric spool drawings and apply appropriate drafting practice.

CADI-1250 – Industrial Software – Credits: 4
Students will identify 3 dimensional (3D) modeling software for each drafting discipline. They will identify types of 3D plant modeling software and 3D parametric software. Students will create models of materials handling equipment and components and piping equipment and components. They will follow a general arrangement to place equipment in the model. Students will output 2D and 3D drawings of the general arrangement.

Semester 3

CADI-2100 – Conveyor Design – Credits: 4
Students will review and identify belt conveyor components. They will identify toughed belt and idler conveyors and their applications. Students will determine belt tracking and design allowances and perform calculations for both gravity and screw type take-up designs. They will explain belt radii, identify loading zones, impact areas and design criteria. Students will apply skirting design and outline a method for skirting installation.

CADI-2150 – 3D Plant Modeling Software – Credits: 4
Students will use advanced 3D modeling tools and techniques. They will use the 3D plant modeling interface and viewing commands to create and edit 3D solid models, and to modify properties of elements. They will output 2 Dimensional (2D) and 3D drawings of the project, and apply dimensions and annotation. Students will use plant modeling software to create the same project that was used in CADI-1220.

Semester 4

CADI-2200 – Process Piping Design – Credits: 3
Students will estimate pipe sizes and describe the process to determine pump sizes. They will explain the effects of temperature on piping systems, cross-check a pipe and its related components, and apply pipe supports. Students will apply equipment and piping layout principles and create a piping nomenclature list. They will create an equipment schedule, and explain the production of piping isometrics.

CADI-2250 – Advanced 3D Plant Modeling Software – Credits: 3
Students will perform calculations, estimate quantities, and check for interferences. They will create complicated piping routes, place steam piping and apply pipe supports. Students will customize design standards within the 3D plant modeling software. They will perform stress analysis using built in tools

Outcomes for Manufacturing Drafting/CADD courses (to be) validated by Manufacturing PAC, April 13 2006 (all courses are New)

Semester 2

CADM-1200 – Fundamentals of Manufacturing and Fabrication – Credits: 4
Students will use manufacturing terms and definitions, follow safety procedures, and describe the characteristics of manufacturing materials. They will identify the roles of manufacturing professionals, and describe the manufacturing process flow. Students will identify manufacturing and fabrication equipment, identify heat treatments, and describe manufacturing and fabrication processes. Students will describe assembly processes, identify sources of parts and materials, use measuring tools and techniques and apply geometric tolerance and dimensioning. They will describe tolerancing and its affect on processes. Students will identify welding processes, and identify common material stock shapes.

CADM-1210 – Component Assembly and Details – Credits: 4
Students will apply information from reference sources, follow codes and standards, and follow ERP and MRP procedures. They will describe the design intent of the assembly, source manufactured components, and prepare assembly and sub-assembly detail drawings. Students will prepare drawings of discrete parts, weldment drawings and sheet metal drawings. They will apply methods of dimensioning and specify machining techniques. They will follow document control procedure for revised parts and identify quality control procedures. They will prepare bill of materials and material pull sheets, and follow document control procedures.

CADM-1220 – Integrated Machine Design Systems – Credits: 4
Students will identify the systems involved in machine design, and differentiate between the design concepts; function and form. They will describe alternative approaches to problem solving and the relationship to design. Students will identify structural, mechanical, electrical, electronic, and electro-mechanical principles related to machine design. They will identify software platforms used in industrial applications, apply trouble-shooting techniques, perform diagnostics, and apply problem-solving skills.

CADM-1250 – 3 Dimensional (3D) Parametric Solids Modeling Software – Credits: 4
Students will identify 3D software for each discipline, and list types of 3D parametric modeling software. They will use 3D parametric software interface, viewing commands and 2 dimensional (2D) sketch commands to create 3D primitives. Students will identify 3D surfaces, apply Boolean variables, and create assemblies using constraints. They will identify output formats and their applications. Students will output 2 dimensional (2D) rendered pictorial drawings, exploded assembly drawings and animation of assemblies.

Semester 3

CADM-2100 – Tool and Die – Credits: 4
Students will list classifications of tool and die industries, differentiate tool classifications, and evaluate die process strategies. They will describe the cutting properties of common tools, select the appropriate tooling for a process, and participate in field trips to shops. Students will identify the difference between manual and computer numeric control (CNC) production. They will identify casting processes, and identify electric discharge machine (EDM) processes.

CADM-2150 – Advanced 3 Dimensional (3D) Parametric Solids Modeling Software – Credits: 4
Students will use advanced tools, and select appropriate driving parameters to suit design intent. They will apply best practices to 3D modeling, and develop formulas to drive parameters. Students will extract data, determine interferences, and perform analysis. They will apply advanced modeling techniques, use parametric families, and identify connectivity to other software applications.

Semester 4

CADM-2200 – Computer Numeric Control (CNC) – Credits: 3
Students will apply CNC terminology and identify CNC machines. They will explain the 3D coordinate system, explain the operation of CNC machines, and author geometric code (G-code). Students will explain the role of post-processors and determine production requirements.

CADM-2250 – Computer Numeric Control (CNC) Software – Credits: 3
Students will import 2D profiles from CADD software, and import 3D models from parametric modeling software. They will create toolpaths, output geometric code (G-code), and run a simulation of the CNC operation. Students will select appropriate post-processors and send G-code to a variety of CNC machines. They will produce real 3D models and compare actual part to manufacturing demand. Students will use reverse engineering to duplicate parts, and output an actual solid model using additive rapid prototyping.

Outcomes for Structural Drafting/CADD courses as validated by Structural PAC
March 9 2006 (all courses are New)

Semester 2

CADS-1200 – Concrete – Credits: 4
Students will describe the structural discipline and apply information from appropriate reference drawings and design notes to prepare concrete floor plan, foundation details, and apply reinforcing information. They will identify concrete characteristics, apply geotechnical information and identify principles of foundation design to prepare anchor bolt and equipment pad details. Students will identify precast / prestressed concrete and calculate reinforcing / concrete quantities. They will develop sections and elevations from plans.

CADS-1210 – Steel – Credits: 4
Students will apply structural steel shapes, prepare line diagrams and apply bridging and open web steel joist extensions. They will prepare bolted and welded steel connections and prepare shop drawings. Students will calculate structural steel quantities and prepare a 3 dimensional (3D) building integrated model (BIM) using 3D software.

CADS-1220 – Timber – Credits: 4
Students will prepare drawings for a bridge approach span, a bridge main span and an abutment for a timber bridge. They will indicate high and low water levels and prepare timber connections and an expansion joint.

CADS-1250 – 3 Dimensional (3D) Modeling Software – Credits: 4
Students will identify 3 dimensional (3D) advanced software for each drafting discipline. They will use 3D viewing commands and the User Coordinate System (UCS) to create 2 dimensional (2D) sketches, and use solid modeling and Boolean commands to create and modify 3D solid models. Students will output 2D and 3D drawings. They will create simple models using parametric modeling software. They will explain the Building Information Model (BIM) and its applications.

Semester 3

CADS-2100 – Site Work – Credits: 4
Students will indicate contour lines and prepare a site layout. They will determine site grading and prepare site drainage and retaining walls. Students will prepare outline of buildings and prepare site access.

CADS-2150 – Building Information Model (BIM) – Credits: 4
Students will use the BIM software interface, viewing commands and apply element styles to create and modify structural elements. They will prepare structural connections, bracing and reinforcing. Students will output 2 dimensional (2D) and (3D) drawings and apply dimensions and annotation. Students will use BIM to create the same project that was used in CADS-1200 & CADS-1210.

Semester 4

CADS-2200 – Reinforced Concrete Superstructure – Credits: 3
Students will prepare drawings for reinforced concrete columns, beams and slabs. They will prepare drawings for reinforced pre-cast concrete shapes and pre-stressed concrete elements. Students will prepare drawings for concrete tilt-up walls and block/masonry walls.

CADS-2250 – Advanced Building Information Model (BIM) – Credits: 3
Students will use advanced tools in the BIM software to perform calculations, estimate quantities, determine interferences and perform analysis. They will apply and extract database information. Students will customize standards within BIM and create the same project that was used in CADS-2150 to produce a complete drawing and information package.

Appendix D

Essential Skills

Drafting/CADD Technologies Diploma
Essential Skills

Creative Thinking and Problem Solving Skills

make generalizations (transfer knowledge and training to new situations)

document a systematic decision-making process using appropriate methods and comparison

facilitate the creative problem-solving process using a variety of techniques such as brainstorming, analogy, probing, attitude, analysis

identify the impact of solutions on resources (personnel, financial, time, etc.)

critically evaluate information for accuracy, relevance, and importance

think critically and act logically to evaluate situations

Oral Skills

participate in a teleconference

organize and conduct meetings

converse in a professional manner in a variety of situations, including work-related situations

present a formal speech to general audience

make impromptu presentations

deliver an effective oral presentation to inform or instruct or persuade

communicate effectively using voice mail

Interpersonal Skills

work within the culture of the company/community (including appearance, hygiene)

develop rapport with people

give appropriate feedback

respond effectively using common sense and knowledge

demonstrate an appropriate level of confidence

demonstrate a flexible and open-minded attitude towards change

resolve conflicts with others

constructively challenge assumptions and traditions

recognizes and manages stress in oneself and others

Teamwork and Leadership Skills

participate actively and productively on the team

establish co-operative working relationships with others in the group

solicit and respond to constructive feedback

establish goals and priorities

prepare and follow schedules

use conflict creatively (e.g. devise “win/win” situations)

Personal Management & Entrepreneurial Skills

take responsibility for his or her own actions and decisions

demonstrate honesty, integrity and personal ethics

to set goals and priorities in work and personal life

plan and manage time, money and other resources to achieve goals

adapt to new situations and demands by applying and/or updating her or his knowledge and skills

set high performance standards

work to satisfy expectations of others (clientele)

demonstrates initiative, motivation, energy and persistence to get the job done

Writing Skills

produce written work which is clear, accurate, and concise

be able to write for your audience which may include individuals with different levels of English proficiency, customers, co-workers, supervisors.

revise and proofread own work

produce professional documents using writing conventions appropriate to the audience, including a work-related audience

keyboard (i.e. type)

use headings, lists and layout techniques to provide access to information more quickly for readers

create and produce a variety of different documents including memos, short reports, letters, and other industry-specific documents

Reading and Information Skills

read to locate specific information

use standard reference material (dictionaries, catalogues, operating manuals)

read quickly for main ideas only

recognize and define technical terms common to the career area related to the course or program

summarize written material

comprehend and interpret detailed business, scientific and/or technical information from text

search for information in the professional literature (print libraries, electronic data bases, company records, CD-Rom and Internet tools, etc.)

Visual Literacy

interpret common graphics (graphs, charts, tables)

select the most effective graphic for a given situation

develop a critical awareness of visual messages (e.g. TV ads, billboards, corporate

design a poster or other display information for in-house or public information

create multimedia presentations

Mathematical Skills

recognize situations that require mathematics

estimate probable answers

decide on the degree of accuracy required for answers

perform basic computations with rational numbers NEW COMPETENCY

express answers clearly

use calculators or appropriate technological tools to perform mathematical calculations accurately

assess potential mathematical strategies for suitability and effectiveness

apply a variety of mathematical techniques with the degree of accuracy required to solve problems and make decisions

transfer the use of mathematical strategies from one situation to another

Intercultural Skills

recognize and respect diversity and individual differences

recognize workplace and community customs currently in practice

understand the intercultural milieu of the larger community

work within the intercultural milieu of the larger community

Technological Skills

develop a basic working knowledge of computers and computer operating systems

select and apply appropriate task related technology such as word processing software, graphics, spreadsheets, etc.

use industry-specific computer-generated documents

apply various technologies (other than P.C.) to basic tasks: understand general intent and proper procedures.

use telecommunications tools to gather and distribute news and information such as fax, e-mail, etc.

use internet for communication and research

install standard software package according to the instruction and know when to request help

maintain and troubleshoot equipment: prevent, identify or solve basic problems with equipment, including computers and other technologies

Citizenship and Global Perspective

develop responsible attitude toward society and the environment

demonstrate an understanding of interconnected local and global issues

show ability to deal with global change

Appendix E

Comparison Chart

Showing Drafting/CADD Related Programs in BC

Comparison Chart Showing Drafting Related Post-Secondary Programs in BC

Type of Program	Duration	Prerequisites	Credits	Focus	Offered at:
Drafting/CADD Certificate	One-year	Math 11 English 12	Vocational	On Drafting/CADD (Discipline related)	Kwantlen (existing) VCC UCFV BCIT NIC
Drafting/CADD Diploma	One and a half years	Math 11 English 12	Vocational	On Drafting/CADD (Discipline related)	VCC (Diploma is actually two certificates in different Specialties)
Drafting/CAD Citation	Half year	Math 11 English 12	Academic	On Drafting/CADD (Discipline related)	Kwantlen
Drafting/CAD Certificate	One year	Math 11 English 12	Academic	On Drafting/CADD (Discipline related)	Kwantlen
Drafting/CADD Certificate with Co-op	One and a half years	Math 11 English 12	Academic	On Drafting/CADD (Discipline related)	Kwantlen
Drafting/CADD Advanced Certificate	One and a half years	Math 11 English 12	Academic	On Drafting/CADD (Discipline related)	Kwantlen
Drafting/CADD Diploma	Two-year	Math 11 English 12	Academic	On Drafting/CADD (Discipline related)	Kwantlen
***Certified Technician**	One-year (the one year technician program is not the first year of a two-year Technology)	Math 12 English 12 Physics 11	Academic	On the discipline with Drafting/CADD as a minor component	BCIT TRU Camosun College College of New Caledonia OC
***Certified Technologist**	Two-year	Math 12 English 12 Physics 11	Academic	On the discipline with Drafting/CADD as a minor component	BCIT Camosun College College of New Caledonia OC

*Certified = Accredited with Canadian Technology Accreditation Board (CTAB)

Appendix F

Letters of Support

Stantec Consulting Ltd.
1100 - 111 Dunsmuir Street
Vancouver BC V6B 6A3
Tel: (604) 696-8000 Fax: (604) 696-8100
stantec.com

Stantec

March 29, 2006

Attention: Kwantlen University College Community

Reference: Drafting/CADD Diploma Proposal

This letter indicates my support for the proposed two-year Drafting/CADD Diploma program.

The proposed program is given direction from individuals in the engineering field, such as myself. I feel this program will benefit future graduates of the program, with industry knowledge that can be utilized immediately upon entering the industry. This gives companies in the industry graduates that can fit into their teams with minimal extra training.

The program structure also allows students to graduate at different levels and allow us as employers to pick up graduates with basic training, or a graduate with full and comprehensive training. This gives the employers more opportunities to select a graduate to fill their specific needs. This program also allows a graduate to upgrade their skills as they see fit in the future which can be an asset to us, as we strive to promote personnel growth in our company.

Sincerely,

STANTEC CONSULTING LTD.

Chris Chadwick
Project Manager
Tel: (604) 696-8272
Fax: (604) 696-8100
cchadwick@stantec.com

Attachment:

Rick Hoegler
Project Design / Construction Coordinator

North Vancouver, BC Canada

Main: 604.983.2595
Cell: 604.619.8566
Email: rl.hoegler@telus.net

March 28, 2006

Re: **Drafting/CADD Diploma Proposal**

To the Kwantlen University College Community,

This letter indicates my strong support for the proposed two-year Drafting/CADD Diploma program.

The drafting/design services industry must keep up with the challenges it faces in the ever changing world of technology and business. I feel that this Kwantlen program for Drafting/CADD will meet those challenges because it has provided an excellent, flexible and well thought-out program that meets the requirements of industry.

Since the outcomes in this proposed program are industry driven, employers will benefit by having input into the training provided.

This program will give students the tools to enter the workforce with sense of preparedness and in turn, will give employers what they are really looking for (and more) for an entry level and succession planning positions. I believe that students taking this course will have a definite competitive advantage over others when competing for drafting/design positions in the workforce.

I am pleased to have participated in a small way to provide input into the development of this program. The Kwantlen instructional team has done excellent work defining the program and it was a pleasure to work with them.

In short, I can only say that I wish that this program was around when I first entered the drafting/design world.

Yours truly,

Rick Hoegler

SML CONSULTANTS GROUP LTD

Kwantlen University College
12666 – 72nd Avenue
Surrey, BC V3W 2M8
Attn: Joanne Massey
joanne.massey@kwantlen.ca

March 31, 2006
Kwan-Cadd.doc

Re: Kwantlen University College, CADD Certificate Program

In reference to the March 23, 2006 steering committee meeting for the proposed CADD certificate program, our firm gladly offers this letter of support. We see a need for programs like the above, which offers current and flexible training for our industry. We believe the proposed structure of the program offers the student levels of ability that are clearly defined and will be easily recognized by industry. We feel that industry is in need of programs of this nature.

We would also like to express an interest to participate in the program advisory committee for the electrical department, to assist with development of course content.

Yours truly,
SML CONSULTANTS GROUP LTD.
Per:

Richard Tucker, LC
Vice President
RCT/lal

City of Richmond
6911 No.3 Road, Richmond, BC V6Y 2C1
Telephone (604) 276-4000
www.city.richmond.bc.ca

March 30, 2006

Re: Drafting/CADD Diploma Proposal

To the Kwantlen University College Community,

This letter indicates my support for the proposed two-year Drafting/CADD Diploma program.

Since the outcomes in this proposed program are industry driven, employers will benefit by having input into the training provided, and by having access to graduates with up-to-date and applicable skills.

The program structure, with multiple entry points, will provide life long learning opportunities for students in this program, and students to upgrade their skills while they progress in their careers

Having attended this course back in 1986/87 I can personally attest to the fact that this program offers equal opportunities for students of all ages. Since I took this course Kwantlen College University has kept pace with industry needs and technologies. Extremely good course content that covers a wide range of topics that will help prepare the students for employment.

Yours truly,

S. Matheson

Stephen Matheson
City of Richmond
Traffic Technician II, Signals
C/o 6960 Gilbert Road
Richmond, B.C.
V7C 3V4
smatheson@richmond.ca

RICHMOND
Island City, by Nature

KILLICK METZ BOWEN ROSE
ARCHITECTS PLANNERS INC.

March 28, 2006

Re: **Drafting/CADD Diploma Proposal**

To the Kwantlen University College Community,

This letter indicates my support for the proposed two-year Drafting/CADD Diploma program.

Since the outcomes in this proposed program are industry driven, employers will benefit by having input into the training provided, and by having access to graduates with up-to-date and applicable skills.

The program structure, with multiple entry and exit points, will provide life long learning opportunities for students in this program, and students to upgrade their skills while they progress in their careers.

This is a good approach for students to learn gradually and become familiar with building industry.
In addition, the program addresses the fundamental drafting needs of an Architectural firm.

Yours truly,

Farshid Rafiei, M.Arch.

Name Signature

Comments:

ANTHONY-SEAMAN LTD.
Consulting Engineers
300 - 1460 MAIN STREET,
NORTH VANCOUVER, BC
V7J 1C8

DAVE PARKER
MECHANICAL

DIRECT DIAL: 604-984-4737
OFFICE: 604-986-6241
FAX: 604-984-3150
EMAIL: dparker@asltd.com

March 9, 2006

Re: **Drafting/CADD Diploma Proposal**

To the Kwantlen University College Community,

This letter indicates my support for the proposed two-year Drafting/CADD Diploma program.

Since the outcomes in this proposed program are industry driven, employers will benefit by having input into the training provided, and by having access to graduates with up-to-date and applicable skills.

The program structure, with multiple entry and exit points, will provide life long learning opportunities for students in this program, and students to upgrade their skills while they progress in their careers.

Yours truly,

DAVE PARKER
Name

Signature

Comments:

FLUOR

Graham P. Bolenback
Designer, Plant Design Group
Mining & Minerals

Fluor Canada Ltd.
1075 West Georgia Street
Vancouver, B.C. V6E 4M7
Canada

604 488 2193 tel
604 488 0582 fax
graham.bolenback@fluor.com

March 9, 2006

Re: **Drafting/CADD Diploma Proposal**

To the Kwantlen University College Community,

This letter indicates my support for the proposed two-year Drafting/CADD Diploma program.

Since the outcomes in this proposed program are industry driven, employers will benefit by having input into the training provided, and by having access to graduates with up-to-date and applicable skills.

The program structure, with multiple entry and exit points, will provide life long learning opportunities for students in this program, and students to upgrade their skills while they progress in their careers.

Yours truly,

GRAHAM BOLENBACK
Name

Signature

Comments:

Glotman · Simpson
GS · Sayors

Michael Haggerty
CAD Technician
mhaggarty@glotmansimpson.com

ISO 9001:2000
FS 34406

Glotman-Simpson
GROUP OF COMPANIES

1661 West 5th Avenue
Vancouver, BC Canada V6J 1N5
Tel 604 734 8822 Fax 604 734 8842
www.glotmansimpson.com

March 9, 2006

Re: **Drafting/CADD Diploma Proposal**

To the Kwantlen University College Community,

This letter indicates my support for the proposed two-year Drafting/CADD Diploma program.

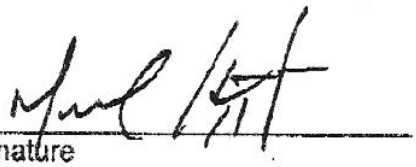
Since the outcomes in this proposed program are industry driven, employers will benefit by having input into the training provided, and by having access to graduates with up-to-date and applicable skills.

The program structure, with multiple entry and exit points, will provide life long learning opportunities for students in this program, and students to upgrade their skills while they progress in their careers.

Yours truly,

MICHAEL HAGGERTY
GLOTMAN SIMPSON

Name



Signature

Comments:

Most employees like to stay current. Drafters with my employer are always looking for the next 'thing' to learn. At my current work level, nothing is being offered that is of any interest to me. I look forward to the direction that Kwantlen intends to go.

Glotman · Simpson
GS · Sayors

Michael Haggerty
CAD Technician
mhaggarty@glotmansimpson.com

ISO 9001:2000
FS 94406

Glotman-Simpson
GROUP OF COMPANIES

1661 West 5th Avenue
Vancouver, BC Canada V6J 1N5
Tel 604 734 8822 Fax 604 734 8842
www.glotmansimpson.com

March 9, 2006

Re: **Drafting/CADD Diploma Proposal**

To the Kwantlen University College Community,

This letter indicates my support for the proposed two-year Drafting/CADD Diploma program.

Since the outcomes in this proposed program are industry driven, employers will benefit by having input into the training provided, and by having access to graduates with up-to-date and applicable skills.

The program structure, with multiple entry and exit points, will provide life long learning opportunities for students in this program, and students to upgrade their skills while they progress in their careers.

Yours truly,

MICHAEL HAGGERTY
GLOTMAN SIMPSON

Name

Signature

Comments:

Most employees like to stay current. Drafters with my employer are always looking for the next 'thing' to learn. At my current work level, nothing is being offered that is of any interest to me. I look forward to the direction that Kwantlen intends to go.

March 27, 2006

Ref: PAC Meeting

Kwantlen University College

Attention: Joanne Massey, John Sprung

Reference: Letter of Support for Drafting CADD Diploma

As a former student of the Kwantlen College Drafting Program I am pleased with the outlook of the proposed drafting cadd diploma program. Having been in industry for the past 4 years, I can see the rapidly expanding need for people, not just with a basic drafting certificate but also for people with a greater knowledge of the entire scope of the job.

This program gives people the skills to enter a job with a good understanding of what is expected of them and what they can offer the industry as well. From and industry standpoint a person who can come into the company with skills is a valuable asset. Kwantlen is providing those skills with this program,

Yours sincerely,

Nicole Moeller

UNIVERSAL DYNAMICS LIMITED

Associated Engineering | GLOBAL PERSPECTIVE. LOCAL FOCUS.

Associated Engineering (B.C.) Ltd.
300 - 4940 Canada Way
Burnaby, B.C., Canada, V5G 4M5

TEL 604.293.1411
FAX 604.291.6163

April 4, 2006
File:

Re: Drafting/Cadd Diploma Proposal

To the Kwantlen University College Community,

This letter indicates my support for the proposed two-year Drafting/CADD Diploma Program.

Since the outcomes in this proposed program are industry driven, employers will benefit by having input into the training provided, and by having access to graduates with the up-to-date and applicable skills.

The program structure, with multiple entry and exit points, will provide life long learning opportunities for students in this program, and students to upgrade their skills while they Progress in their careers.

Yours truly,

Grant Harder

March 28, 2006

Re: **Drafting/CADD Diploma Proposal**

To the Kwantlen University College Community,

This letter indicates my support for the proposed two-year Drafting/CADD Diploma program.

I truly believe this is a very worthwhile program and I am excited for Kwantlen and hope this Drafting/CADD program makes it to the next level. The next generation will require more educational facilities that will be strategically located throughout the lower mainland providing this type of course and think that Kwantlen fits the bill.

Well done to the organizing committee and trust this all works out for the betterment of our next generation of workers.

Yours truly,

Signature

Wes Elias

Harvalias Consulting Services Ltd.

March 31, 2006

Re: **Drafting/CADD Diploma Proposal**

To the Kwantlen University College Community,

This letter indicates my support for the proposed two-year Drafting/CADD Diploma program.

Thank you,

Yours very truly,

_____

Dimitri Harvalias

Harvalias Consulting Services Ltd.
2940 Delahaye Drive, Coquitlam, B.C. V3B 7E8
tel (604) 240-7311 fax (604) 941-6536 e-mail harvalias@telus.net

To the Kwantlen University College Community,

Re: **Drafting/CADD Diploma Proposal**

31 Mar 2006

This letter indicates my support for the proposed two-year Drafting/CADD Diploma program.

I am confident that the direction of the program development and planned outcomes will produce valuable future staff members for my organization. I look forward to the fruits of this program in the coming years.

Yours truly,

Fred Suchodolski
Sr. Mechanical/ Piping Designer & 3D Coordinator

cc:

M:_Pipe Mech General\Training\Kwantlen\Ltr_of_SupportApr2006.doc

AMEC Americas Limited
111 Dunsmuir Street, Suite 400
Vancouver, B.C. V6B 5W3
Tel (604) 664-4315
Fax (604) 669-9516
www.amec.com

April 4, 2006

Re: **Drafting/CADD Diploma Proposal**

From: Robert Melnyk
Manager, Design and Plan Division
AllPro Building Systems

To the Kwantlen University College Community,

This letter indicates my support for the proposed two-year Drafting/CADD Diploma program.

Since the outcomes in this proposed program are industry driven, employers will benefit by having input into the training provided, and by having access to graduates with up-to-date and applicable skills.

The program structure, with multiple entry and exit points, will provide life long learning opportunities for students in this program, and allow students to upgrade their skills while they progress in their careers.

Yours truly,

ROB MELNYK
Name

Signature

Comments:

The broad approach to this program gives the student an excellent oversight to a variety of aspects of the real world. Having come through a similar program myself, I can appreciate the wide knowledge base being imparted to the students in this course. I totally agree with the approach being adopted, and fully support the direction and intentions of the program.

ANNE TOMLINSON
[illegible] SPECIALIST

202 - 366 West 8th Ave.
[illegible] VANCOUVER BRITISH COLUMBIA CANADA V5Y 3X2
TELEPHONE 604 730 1422 FACSIMILE 604 738 8191 EMAIL atomlinson@eqcanada.com

March 9, 2006

Re: **Drafting/CADD Diploma Proposal**

To the Kwantlen University College Community,

This letter indicates my support for the proposed two-year Drafting/CADD Diploma program.

Since the outcomes in this proposed program are industry driven, employers will benefit by having input into the training provided, and by having access to graduates with up-to-date and applicable skills.

The program structure, with multiple entry and exit points, will provide life long learning opportunities for students in this program, and students to upgrade their skills while they progress in their careers.

Yours truly,

ANNE TOMLINSON
Name

Anne Tomlinson.
Signature

Comments:

Dhillon Design
UNIT 215- 12830-80th AVE.
SURREY, B.C. V3W 3A8
PHONE: (604) 590-2808
FAX: (604) 590-2878
E-MAIL:s.dhillon@shaw.ca

April 3, 2006

Re: Drafting/CADD Diploma Proposal

To the Kwantlen University College Community,

This letter indicates my support for the proposed two-year Drafting/CADD Diploma program.

Since the outcomes in this proposed program are industry driven, employers will benefit by having input into the training provided, and by having access to graduates with up-to-date and applicable skills. For example, our architectural drafting & design company requires good knowledge of algebra, geometry (for roof slope & ceiling height relationships, lot layouts & standards in measuring angles), and excellent communication skills. These skills need to fit into a curriculum structure that will accommodate students from different knowledge levels.

The program structure, with multiple entry and exit points, will provide life long learning opportunities for students in this program, and students to upgrade their skills while they progress in their careers. We even intend to enroll in the program ourselves as we support the many entry and exit points to attain either of the following completions: Citation, Certificate (on its own, w/ co-op, or advanced) or Diploma.

Thank you for considering the approval of the proposed Drafting/CADD Diploma Program.

Yours truly,

S Dhillon.
INDERJIT S. DHILLON

Hasmin Balce
HASMIN BALCE

CANKEVIN DESIGN CENTER
57-12110 75A AVENUE, SURREY, BC V3W 1M1 TEL:604-5438984

LETTER OF SUPPORT

I fully support Manufacturing Drafting/CADD Diploma--a 2 year program at Kwantlen University College.

Yifeng Xu

Mechanical Designer
Cankevin Design Center

To: "'Joanne Massey'" <Joanne.Massey@kwantlen.ca>
From: "Geoff Sale" <geofsale@adsl.intergate.ca>
Date: 04/05/2006 03:43PM
cc: "'John D. Shortreid'" <john@shortreid.com>
Subject: RE: Drafting/CADD Diploma - Preliminary Package

Hi Joanne!
It was indeed fortunate that you came over and we met at the job fair last week!

I have looked over the pdf you sent me, and I am reasonably certain that all the programs will be eligible for accreditation by the CTAB at the Technician level. It's clear that your students will graduate with a wide variety of CADD- and drafting-related capabilities, and will find work in an extensive cross-section of industry in the region and across the country, should they choose.

I very much look forward to further discussions about the program at our meeting on Apr 20.

Best Regards,

Geoff

Geoff Sale , AScT
Manager, Technology Education & Standards
Applied Science Technologists and Technicians of BC (ASTTBC)
geofsale@adsl.intergate.ca
Home (604) 521-5059, Cell (604) 488-4559

UNIVERSITY COLLEGE of the FRASER VALLEY

May 21, 2004

Kwantlen University College
12666 - 72nd Ave
Surrey, BC V3W 2M8

Attention: Joanne Massey

To Whom It May Concern:

I attended, with interest, the Kwantlen University College Steering Committee meeting for their proposed 'Engineering Design and Drafting' diploma program. The possible areas of training included architectural, material handling, structural, electrical, civil, steel detailing, mechanical and building services. The program flow presented provided a great deal of flexibility to the student for entry and exit points. This would seem to allow for the possibility of a one year drafting program grad from other institutions, such as those from our Arch/Civil Drafting program, to easily ladder into the second year of this diploma program. This, of course, is dependant on the coordination of transferable courses within the first year.

The opportunity for students to access technology level programs, in this area of training, in the Fraser Valley region is exciting. I look forward to hearing more about the program as curriculum is developed and also to discussing the possible coordination of courses between Kwantlen and UCFV which would offer our students a seamless laddering between the institutions.

Sincerely,

Tricia Thomson, AScT (Building)
Instructor
UCFV Architectural / Civil Drafting Program

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Subject: RE: It is not too late! Letters of Support - May 17
From: "Michael Whitmore" <Michael.Whitmore@nic.bc.ca>
Date: Tue, June 8, 2004 11:24 am
To: joanne.massey@kwantlen.ca
Priority: Normal
Options: View Full Header | View Printable Version

Joanne,

I would like to commend Kwantlen's Drafting and Design department for their decisic to expand a 2 year tecnology program. I am looking forward to sending my students to Kwantlen to complete the second year of their studies. The different entry and exit points have been well placed to allow for a wide range of study options.

I look forward to working with you in the future.

Michael Whitmore
Instructor, Drafting Certificate Program
North Island College
1685 S. Dogwood Street
Campbell River, BC V9W 8C1
Ph: 250-923-9736
Fax: 250-923-9703
email: michael.whitmore@nic.bc.ca <mailto:michael.whitmore@nic.bc.ca>

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Appendix G

Program Advisory Committee (PAC) Members

Kwantlen UNIVERSITY COLLEGE

Drafting/CADD Technologies
Program Advisory Committee (PAC) Members

Architectural PAC

Ms.	Hasmin	Balce	Dhillon Designs Ltd.
Mr.	Farshid	Rafiei-Anaraki	Killick Metz Bowen Rose (KMBR)
Mr.	Dimitri	Harvalias	Harvalias Consulting Services Ltd.
Mr.	George W.	Cawdry	Breakwater Design Group
Mr.	Rob	Melnyk	Allpro Building Systems
Mr.	Inderjit	Dhillon	Dhillon Designs Ltd.

Industrial PAC

Mr.	Wes	Elias	Stantec Consulting Ltd.
Mr.	Steve	Gustavson	Sandwell Engineering Services Ltd.
Mr.	Dave	Parker	Anthony Seaman Ltd.
Mr.	Rick	Hoegler	Self-employed
Mr.	Graham	Bolenback	Fluor Canada
Mr.	Fred	Suchodolski	AMEC Americas

Civil PAC

Mr.	Grant	Harder	Associated Engineering
Ms.	Karen	Stewart	Township of Langely
Ms.	Linda	Rutland-Petch	Alderwood Consultants
Mr.	Anthony	Triemstra	Hub Engineering Inc.
Ms.	Kelly	Wightman	McElhanney Consulting Services Ltd.
Ms.	Teresa	Easton	McElhanney Consulting Services Ltd.

Structural PAC

Mr.	Jos	Arpink	Glotman - Simpson
Mr.	Michael	Haggerty	Glotman - Simpson
Mr.	Rick	Kirkham	CPM Consultants
Mr.	Steve	Leesing	Canadian Tree Tech Ltd.
Ms.	Kristy	Angus	Krahn Engineering
Ms.	Anne	Tomlinson	Equilibrium Consulting Inc.

Electrical PAC

Mr.	Louie K.	Kardosi	Unique Design Services Ltd.
Mr.	Rick	Tucker	SML Consultants Group Ltd.
Ms.	Nicole	Moeller	Universial Dymanics Ltd.
Mr.	Steve	Matheson	City of Richmond
Mr.	Chris	Chadwick	Stantec Consulting Ltd.

Manufacturing PAC

Mr.	Dave	Parry	NuHeat Industries Ltd.
Mr.	Janusz	Krawczynski	TIR Systems Ltd.
Ms.	Wen	Song	Garaventa Accessibility
Mr.	Ian	Spencer	Unifiller Systems Inc.
Mr.	Yifeng	Xu	Cankevin Design Center
Mr.	Ken	Downes	3D Design/Downes Design Services
Mr.	Frank	Zander	Contract CADD Group
Mr.	Paul	Ritter	Canadian Process Technologies Inc.

Steel Detailing PAC

Mr.	Hugh	Dobbie	Dowco Consultants Ltd.

(Steel detailing to be developed at a later date)

Appendix H

Core Review

Program Advisory Committee (PAC) Members
March 2006

Kwantlen UNIVERSITY COLLEGE

Drafting/CADD Technologies

CORE Review by Program Advisory Committee - March 2006

	Name	
1	**Wes Elias**	(604) 597-0422 Stantec Consulting Ltd welias@stantec.com General Comments: Good Job, some good thought went into building this Core. I only have a few comments. Hope this helps DRAF-1100 Would like box N6 to become O4 as this should be the final check before handing over drawing(s) to project managers or chief draftpersons DRAF-1150 Would like to see Modules L & M switched around L to M and M to L. Xref's are a component of the finished drawing and are in place before you start plotting or applying your page set up.
2	**Nicole Moeller**	604 241 9248 Universal Dynamics nmoeller@udl.com General Comments: The core looks good. There should be an emphasis throughout the course of basic drafting and good checking techniques.
3	**Hasmin Balce**	(604) 590-2808 hasmin_b@hotmail.com General Comments: Looks good. There are even outcome contents that I'd like to learn myself to keep up to date.
4	**Anthony Triemstra**	604-572-4328 Hub Engineering Inc. mat@hub-inc.com General Comments: The core looks really good. I am very pleased to see the extent, which you are covering.
5	**Kristy Angus**	604-853-8831 Ext. 339 Krahn Engineering kristya@krahn.com General Comments: It would be beneficial to students if they could visit an engineering office or do a "job-shadow" so they can see what the office environment is really like. I realize that this would not be a realistic "requirement" for the course as not every student would be able to find someone willing to take the time to show them the industry. However, i do believe it should be a "suggestion" that they could look into on their own. (bonus credits?) DRAF-1100-E identify the importance of accurate on-site field sketches & measurements. DRAF-1150-F identify the reasoning behind layers and use of layers (to freeze objects, etc) (why simply matching colours is not acceptable) DRAF-1150-J

		stress the importance of dimension accuracy - identify how to change the dimension precision settings. DRAF-1110-C use of Building Code - where to find information on Code Requirements DRAF-1160 sufficient DRAF-1302 sufficient DRAF-1306 sufficient
6	**Farshid Rafiei-Anaraki**	604 732 3361 Killick Metz Bowen Rose Architects Planners Inc frafiei@kmbr.com General Comments: Students who graduated from technical institutions usually have good computer skills but do not have sufficient knowledge to implement their skills in the industry. They tend to make fundamental mistakes due to the lack of understanding of real world building space. Hence, Kwantlen University should introduce essential elements like designing outlines and 3D geometry as a course or part of a course. These essential elements would help student to visualize the real building space in addition to learning design fundamentals. With 3D visualizations, it would be easier for students to understand the importance of design, spatial arrangement and coordination between other disciplines e.g. Structural, Mechanical and Electrical. This would benefit all the students as well as the building industry. 1100-K-1 Usage of details in different scales. For example: a detail (or Wall Section) at 1:20 can contain limited information and for more information detail should be blow up in 1:5 or 1:2. In other word: Students to understand differentiate between scales. 1150-H-5 text size per different scales. 1110-A-5 Provide drawings checklist. 1160-E-8 Different between Spreadsheet (Like Microsoft Excel)and DataBase(Like Microsoft Access) files. 1160-A-6 File Managing systems: by projects, by extentions, by categories and by date.
7	**Ian Spencer**	Unifiller General Comments: At first look it looks comprehensive.
8	**Yifeng Xu**	604-543-8984 Cankevin Design cankevin@shaw.ca No Comments

9	**Stephen Matheson**	604-276-4033 City of Richmond smatheson@richmond.ca General Comments: Having taken the course some time ago (87/88) I have a fairly good grasp of the course content although with the change of technology most of the drafting today is done via computer. It is good to see that the emphasis is placed on this and the course material and software being used is the most current. Good job!
10	**Krawczynski Janusz**	6044732305 TIR Systems Ltd. janusz.krawczynski@tirsys.com General Comments: The programs are well planed and complete from architectural drafting perspective. Unfortunately they revolve around AUTOCAD only. I admit that for some industries this is not a problem. Personally I would like to see more than one drafting software choices for students. I am witnessing a trend in the industry where AUTOCAD is being replaced with 3D parametric solid modeling in mechanical design. AUTOCAD is likely to dominate the architectural world for next few years. Currently available parametric solid modeling programs like SolidWorks or Solid Edge are becoming the drafting standard of the future. I believe that students must have choice to learn them as well.
11	**Richard Tucker**	604-946-7680 SML Consultants Group Ltd sml_rick@dccnet.com General Comments: Looks great. 1100-E-1 Excellent. freehand sketching. 1100-M-1 Perfect. Need to explain your drawings. Give instructions. 1160-A-1 So important when in an office environment.
12	**Kelly Wightman**	604-596-0391 McElhanney Consulting Engineers – Civil kwightman@mcelhanney.com General Comments: Sounds good, keep reinforcing fundamentals! Thanks
13	**Rick Hoegler**	604.983.2595 rl.hoegler@telus.net General Comments: This is a great outline for the course. It's great to see that the rules of fundamental manual drafting are being seen as primary guidelines when applied to CAD. As an added consideration, I think it could be of great benefit to the students if they could visit a construction or manufacturing site and have the opportunity to directly relate a set of drawings to the final product. From my experience, I know that there was no substitute for site experience, even in small amounts. (Besides, who didn't like field trips in school?)

		DRAF-1100 Perhaps consider adding an introduction that includes defining the role of the draftsperson in the overall design process and how the role has, and continues to change with the advancement of CAD technology. Explain the roles and relationships between drafter/designer and engineer (and external parties such as client and suppliers)and why the drafting sketches and drawings are such an important communication tool during the preliminary, mid and advanced stages of the design. DRAF-1160-G-2 Consider creating a basic flowchart that shows the engineering disiplines and how the design (e.g. a building or product) evolves. It could show how clients and suppliers contribute to project. This could highlight the revision process and would include the "review and comment" and "Tender" and other phases that drawings (including suppliers) are subjected to. DRAF-1110-A-4: Add: Design Standards DRAF-1100-L-7: Consideration: Should a basic intro to GD&T be taught here or should it be located in an appropriate specialty course(s) for semester 2?
14	**Dave Parker**	6049242668 Anthony-Seaman Ltd. dparker@asltd.com General Comments: Looks good, most of the esentials are in place
15	**Dimitri Harvalias**	604-240-7311 Harvalias Consulting Services Ltd harvalias@telus.net General Comments: All in all the core seems to be well thought out and includes most of what someone might need to be a useful junior drafter. I find it troubling that the core seems to be very AutoCad specific and that more thought and emphasis has not been placed on 3D modeling (building modeling specifically) rather than 2D drafting alone. Having seen the benefits and success of 3D modeling in the manufacturing sector, the AEC Industry is very rapidly shifting to the building model as the choice for project documentation. I believe if Kwantlen wants their graduates to be sought after and their program to remain relevant for more than two or three years after implementation they need to consider this trend and rethink some of the core outcomes to ensure students are grounded in contruction fundamentals and the 'model it like you'd build it' approach. I believe these sentiments were expressed in our early sessions, not just by those in architecture, but in all discplines. Knowing 'what' and 'why' you are asked to model/draw something as opposed the knowing 'how' to draw it. DRAF-1160 No mention of collaboration software or methods and 'real' time project management. FTP, 'Buzzsaw' issues relating to WAN and Project Web Sites. Emphasis on use and creation of templates for efficiency and consistency; 'fill-in' fields, boilerplate text, autotext entries etc. DRAF-1160 A-5 - what is Irfanview? H - Drafting is misspelled

		DRAF-1306-B Review of import/export options and interoperability between CAD and modeling packages. How does one format move and translate into another? What's the best way to get model geometry from one CAD/modeling app to another. ACIS solids, 3D PDF and 3D DWF, DXF etc. DRAF-1110-A Introduction to the concept of 'cartooning' a set of project documents.Plan ahead. DRAF-1110-D Some discussion about 'real world' methods and how things are actually done on site. An understanding of construction methods and sequencing is critical toward understanding how to detail and document a construction project. This comment applies to not only to foundation plans but all other views as well DRAF-1110-F Introduction to Building Code. Not necessarily a ull course but at least some insight into what code considerations must be dealt with during the design and detailing process DRAF-1150-I Use of blocks as placeholders. Importance of the insertion point for a block and how it affects block replacement down the road. Looking for patterns and repetition in drawings to assist in rapid, global changes to documentation. Nested blocks... W/C as a block, vanity as a block, tub as a block, all nested into a typical washroom block nested into a typical one bedroom layout as a block etc DRAF-1150-O Use of blocks and attributes to assist in calculation e.g. parking counts, seating counts, area schedules
16	**Fred Suchodolski**	664 3316 AMEC Americas Ltd., Vancouver fred.suchodolski@amec.com General Comments: This looks very good. The core is rather ambitious for the first exposure of a newbie to the world of engineering. Having said that it's better to sort out those who will cut it from those who won't as early in the program as possible. I would like to see a small simple project as part of the core that takes the student through the conceptual, drafting and actual creation of an object. This would complete the loop of visualization, drawing creation and fabrication from drawings. This project would help some people see the bigger picture. To be good in engineering you need to be able to grasp the big picture and pay attention to the details. I would also like to see some form of cooperative project that requires a couple of students to plan, coordinate and work together to complete a single project. This is very common in the work world. Poor cooperation can make the difference between success and failure. DRAF 1150-R-3 Add this items as: Methods of managing multiple versions of the same drawing. This would be applied to either revisions or alternate designs. Protecting and archiving files might fall under this topic.

		DRAF 1160-G-10 Add this item as: write a "record of discussion" that captures decisions and actions agreed to in a converstation. DRAF 1302 This seems to be too detailed at this early stage of training. I suggest that most new hires will not be asked to be involved at this level. It's important to understand what is possible in the CAD environment and perhaps it can be part of the CAD II program. Let's not scare them off too quickly.

Appendix I

Autumn Meeting Dates
Program Advisory Committee (PAC)

Industrial PAC	September 21 2006
Architectural PAC	September 28 2006
Electrical PAC	October 5 2006
Civil PAC	October 12 2006
Manufacturing PAC	October 19 2006
Structural PAC	October 26 2006
Steel Detailing PAC	To be determined - future date

Appendix J

Detailed Program Flow Charts

Course Acronyms

CADD	Common to all programs
CADA	Architectural
CADC	Civil
CADE	Electrical
CADI	Industrial
CADM	Manufacturing
CADS	Structural

Kwantlen UNIVERSITY COLLEGE

Architectural Drafting/CADD Diploma

2 year Program - Flow Chart

Bridge
PHYP-1011
Introduction
to Physics

1st Semester CORE

CORE	CR
CADD-1100 Drafting Fundamentals	4
CADD-1110 Summative Project	4
CADD-1150 Autocad	4
CADD-1160 Office Procedures I	3

Credits: 15

2nd Semester Specialty I

Specialty	CR
CADA-1250 Building Information Model (BIM) Software	4
CADA-1200 Architectural Fundamentals	4
CADA-1210 Single Family Residential	4
CADA-1220 Commercial	4

Credits: 16

3rd Semester Specialty II

Academic	CR
CMNS-1115 Writing for Specialized Workplace	3
*ENGQ-1099 (If Required)	N/A
CADD-2160 Office Procedures II	4
Specialty	
CADA-2100 Multi-Family Residential	4
CADA-2150 BIM Software – Project Lab	4

Credits: 15

4th Semester Specialty III

Academic	CR
PHYS-1100 Basic College Physics	4
MATH-1112 Pre Calculus Algebra	3
CADD-2260 Office Procedures Plus	2
Specialty	
CADA-2200 Residential/Commercial (Multi-Use)	3
CADA-2250 Advanced BIM – Integrated Systems	3

Credits: 15

Prequisites:
English 12 (C)

Principles of Math 11 (C+)

Citation

Certificate

Co-op Option

Certificate with Co-op

Advanced Certificate

Diploma

*ENGQ-1099
Required if the student does not have English 12 (B) and does not pass the English placement test to get into ENGL-1100

PAC Activities

Reviewed by PAC in Core Review

Outcomes determined by Program Advisory Committee

Common to all specialties – Reviewed at PAC Meeting

Existing Academic courses

Civil Drafting/CADD Diploma

2 year Program - Flow Chart

Bridge
PHYP-1011
Introduction
to Physics

1st Semester — CORE

CORE	CR
CADD-1100 Drafting Fundamentals	4
CADD-1110 Summative Project	4
CADD-1150 Autocad	4
CADD-1160 Office Procedures I	3

Credits: 15

2nd Semester — Specialty I

Specialty	CR
CADC-1250 Land Development Software	4
CADC-1200 Civil and Surveying Fundamentals	4
CADC-1210 Land Development Subdivision	4
CADC-1220 Structures	4

Credits: 16

3rd Semester — Specialty II

Academic	CR
CMNS-1115 Writing for Specialized Workplace	3
* ENGQ-1099 Writing Skills with Reading	N/A
CADD-2160 Office Procedures II	4
Specialty	
CADC-2100 Transportation	4
CADC-2150 Civil Design Software	4

Credits: 15

4th Semester — Specialty III

Academic	CR
PHYS-1100 Basic College Physics	4
MATH-1112 Pre Calculus Algebra	3
CADD-2260 Office Procedures Plus	2
Specialty	
CADC-2200 Mapping and GIS	3
CADC-2250 GIS Software	3

Credits: 15

Prequisites:
English 12 (C)

Principles of
Math 11 (C+)

Citation

Certificate

Co-op Option

Certificate with Co-op

Advanced Certificate

Diploma

*ENGQ-1099
Required if the student does not have English 12 (B) and does not pass the English placement test to get into ENGL-1100

PAC Activities

Reviewed by PAC in Core Review

Outcomes determined by Program Advisory Committee

Common to all specialties – Reviewed at PAC meeting

Existing Academic courses

Electrical Drafting/CADD Diploma

2 year Program - Flow Chart

Bridge
PHYP-1011
Introduction
to Physics

1st Semester — CORE

CORE	CR
CADD-1100 Drafting Fundamentals	4
CADD-1100 Summative Project	4
CADD-1150 Autocad	4
CADD-1160 Office Procedures I	3

Credits: 15

2nd Semester — Specialty I

Specialty	CR
CADE-1250 Lighting Software	4
CADE-1200 Electricity and Wiring Diagrams	4
CADE-1210 Schematics-Grounding	4
CADE-1220 Lighting	4

Credits: 16

3rd Semester — Specialty II

Academic	CR
CMNS-1115 Writing for Specialized Workplace	3
* ENGQ-1099 Writing Skills with Reading	N/A
CADD-2160 Office Procedures II	4
Specialty	
CADE-2100 Cable Trays	4
CADE-2150 Building Information Model (BIM) Software for Electrical	4

Credits: 15

4th Semester — Specialty III

Academic	CR
PHYS-1100 Basic College Physics	4
MATH-1112 Pre Calculus Algebra	3
CADD-2260 Office Procedures Plus	2
Specialty	
CADE-2200 Control Panels	3
CADE-2210 Programmable Logic Controllers (PLC)	3

Credits: 15

Prequisites:
English 12 (C)

Principles of Math 11 (C+)

Citation

Certificate

Co-op Option

Certificate with Co-op

Advanced Certificate

Diploma

*ENGQ-1099
Required if the student does not have English 12 (B) and does not pass the English placement test to get into ENGL-1100

PAC Activities

Reviewed by PAC in Core Review

Outcomes determined by Program Advisory Committee

Common to all specialties – Reviewed at PAC meeting

Existing Academic courses

Industrial Drafting/CADD Diploma

2 year Program - Flow Chart

Bridge
PHYP-1011
Introduction
to Physics

1st Semester CORE

CORE	CR
CADD-1100 Drafting Fundamentals	4
CADD-1110 Summative Project	4
CADD-1150 Autocad	4
CADD-1160 Office Procedures I	3

Credits: 15

2nd Semester Specialty I

Specialty	CR
CADI-1250 Industrial Software	4
CADI-1200 Industrial Applications	4
CADI-1210 Transfer Deck & Conveyor	4
CADI-1220 Process Piping	4

Credits: 16

3rd Semester Specialty II

Academic	CR
CMNS-1115 Writing for Specialized Workplace	3
* ENGQ-1099 Writing Skills with Reading	N/A
CADD-2160 Office Procedures II	4
Specialty	
CADI-2100 Conveyor Design	4
CADI-2150 3D Plant Modeling Software	4

Credits: 15

4th Semester Specialty III

Academic	CR
PHYS-1100 Basic College Physics	4
MATH-1112 Pre Calculus Algebra	3
CADD-2260 Office Procedures Plus	2
Specialty	
CADI-2200 Process Piping Design	3
CADI-2250 Advanced 3D Plant Modeling Software	3

Credits: 15

Prequisites:
English 12 (C)

Principles of Math 11 (C+)

Co-op Option

Citation

Certificate

Advanced Certificate

Diploma

Certificate with Co-op

*ENGQ-1099
Required if the student does not have English 12 (B) and does not pass the English placement test to get into ENGL-1100

PAC Activities

Reviewed by PAC in Core Review

Outcomes determined by Program Advisory Committee

Common to all specialties –Reviewed at PAC meeting

Existing Academic courses

Manufacturing Drafting/CADD Diploma

2 year Program - Flow Chart

Bridge
PHYP-1011
Introduction
to Physics

1st Semester CORE

CORE	CR
CADD-1100 Drafting Fundamentals	4
CADD-1110 Summative Project	4
CADD-1150 Autocad	4
CADD-1160 Office Procedures I	3

Credits: 15

2nd Semester Specialty I

Specialty	CR
CADM-1250 3D Parametric Software	4
CADM-1200 Fabrication & Manufacturing Fundamentals	4
CADM-1210 Component Assembly And Details	4
CADM-1220 Integrated Machine Design Systems	4

Credits: 16

3rd Semester Specialty II

Academic	CR
CMNS-1115 Writing for Specialized Workplace	3
* ENGQ-1099 Writing Skills with Reading	N/A
CADD-2160 Office Procedures II	4
Specialty	
CADM-2100 Tool and Die	4
CADM-2150 Advanced 3D Parametric Software	4

Credits: 15

4th Semester Specialty III

Academic	CR
PHYS-1100 Basic College Physics	4
MATH-1112 Pre Calculus Algebra	3
CADD-2260 Office Procedures Plus	2
Specialty	
CADM-2200 Computer Numeric Control (CNC)	3
CADM-2250 CNC Software	3

Credits: 15

Prequisites:
English 12 (C)

Principles of Math 11 (C+)

Citation

Certificate

Co-op Option

Certificate with Co-op

Advanced Certificate

Diploma

*ENGQ-1099
Required if the student does not have English 12 (B) and does not pass the English placement test to get into ENGL-1100

PAC Activities

Reviewed by PAC in Core Review

Outcomes determined by Program Advisory Committee

Common to all specialties – Reviewed at PAC meeting

Existing Academic courses

Kwantlen UNIVERSITY COLLEGE

Structural Drafting/CADD Diploma

2 year Program - Flow Chart

Bridge
PHYP-1011
Introduction
to Physics

1st Semester — CORE

CORE	CR
CADD-1100 Drafting Fundamentals	4
CADD-1110 Summative Project	4
CADD-1150 CADD software	4
CADD-1160 Office Procedures I	3

Credits: 15

2nd Semester — Specialty I

Specialty	CR
CADS-1250 3D Modeling Software	4
CADS-1200 Concrete	4
CADS-1210 Steel	4
CADS-1220 Timber	4

Credits: 16

3rd Semester — Specialty II

Academic	CR
CMNS-1115 Writing for Specialized Workplace	3
* ENGQ-1099 Writing Skills with Reading	N/A
CADD-2160 Office Procedures II	4
Specialty	
CADS-2100 Site Work	4
CADS-2150 Building Info Model (BIM)	4

Credits: 15

4th Semester — Specialty III

Academic	CR
PHYS-1100 Basic College Physics	4
MATH-1112 Pre Calculus Algebra	3
CADD-2260 Office Procedures Plus	2
Specialty	
CADS-2200 Precast Prestressed Concrete	3
CADS-2250 Advanced BIM	3

Credits: 15

Prequisites:
English 12 (C)

Principles of Math 11 (C+)

Citation

Certificate

Co-op Option

Certificate with Co-op

Advanced Certificate

Diploma

*ENGQ-1099
Required if the student does not have English 12 (B) and does not pass the English placement test to get into ENGL-1100

PAC Activities

Reviewed by PAC in Core Review

Outcomes determined by Program Advisory Committee

Common to all specialties – Reviewed at PAC meeting

Existing Academic courses

APPENDIX C

CADD Program Revisions

Advanced CADD Diploma

Manufacturing to Mechanical

CADD 2220

Credit Changes

CADD Program Revision

Advanced CADD Diploma

December 2009

Computer Aided Design and Drafting (CADD) TECHNOLOGIES

PROGRAM REVISION

PROPOSAL for Additional 2nd Year Option

"Advanced CADD"

Prepared by

JOANNE MASSEY – Department Chair
October 27 2009

For Presentation to Senate

December 14 2009

Computer Aided Design and Drafting (CADD) TECHNOLOGIES

PROPOSAL for Additional 2nd Year Option – "Advanced CADD"

PROPOSAL

To add an additional second year option that will allow Certificate students from any CADD Specialty area into a common second year structure with advanced CADD skills.
(see pages 5 and 6 – graphic charts of existing and proposed program structure)

RATIONALE

The proposed Advanced CADD Option for second year will provide students with skills common to all CADD Specialty areas, rather than higher level skills focused in a specific Specialty area. These proposed skills include 3 Dimensional (3D) modeling, rendering and animation, online document management, CADD customization, and computer networking skills. We have designed the proposed second year courses in such a way the the title and topic of the course will not change, but the structure and composition of the outcomes within the courses can change to keep up with technology. The Program Advisory Committee (combined from all the speciality areas) has endorsed the additional option.

BACKGROUND

The original Full Program Proposal (FPP) for the CADD Diploma program was approved by Education Council in September 2006 and implemented in September 2007. During the development of the framework and the Full Program Proposal (FPP) we took the opportunity to accomplish several goals:

1. To update the name of the program from Drafting to Computer Aided Design and Drafting (CADD)Technologies.
2. To move from a vocational teaching model and transcript to an undergraduate teaching model and transcript.
3. To develop a second year Diploma stream.
4. To offer training in all CADD Specialty areas (Architectural, Civil, Electrical, Industrial, Manufacturing and Structural).
5. To create a separate Program Advisory Committee (PAC) for each Specialty area to include what industry required for the current job market.

CURRENT PROGRAM

The existing CADD second year courses and Diploma streams (see page 5) will not be offered unless there is a demand, but will remain in effect for the time being for PLA purposes. Many past graduates that have been working for several years have indicated that they would like to challenge our second year courses as they have received this training in their employment. During the upcoming Program Review scheduled for the CADD Program in early 2010 we will determine which courses and Diploma options to keep and which to remove.

When the first CADD Diploma students completed their Certificates in April 2008 most students opted to enter the work force as entry level CADD operators, given the many opportunities available. Despite the attempt to offer second year CADD courses in the evenings to accommodate those who had entered the workforce, it became too challenging to offer second year courses in

multiple Specialties. As a result, none of the students that have entered the CADD Diploma program since September 2007 have been able to complete second year. Due to the common nature of the proposed Advanced CADD Option, all Certificate graduates can take this option to obtain their CADD Diploma without having to wait for their Specialty area to run the second year.

PROPOSED PROGRAM

The proposed Advanced CADD Option will feed directly into the third year of the Bachelor of Technology (BTech) that is currently being developed by the Faculty of Trades and Technology.

The proposed Advanced CADD Option includes all the BTech Bridging Courses and will enable CADD Diploma graduates to continue into the third year of the BTech degree without a bridge whereas the current second year structure for all Specialties requires CADD Diploma graduates to complete ENGL 1100 and BUSI 1210 in addition to the CADD Diploma to continue into the third year of the degree.

CREDENTIAL

The credential will be a Diploma in Advanced CADD

Proposed Implementation Date: September 2010

Number of students: 20 to 40 (1 or 2 cohorts) per year dependent upon demand

Enrollment projections are based on current enrollment of 3 cohorts of Certificate graduates per year in the Architectural, Manufacturing and Structural Specialties (20 students per cohort). Not all Certificate graduates will continue on into the Diploma. Through communication between the CADD Department Chair and all the currently enrolled students, including the High School partnership students, we anticipate that between 33% and 66% of Certificate graduates per year will complete the Diploma.

There are more than 50 existing Certificate graduates who have completed the CADD Certificate program since September 2007 and have not yet had an opportunity to complete the Diploma, as in Item B above. Based on communication with these certificate graduates, 50% of these students still plan to complete the CADD Diploma.

New Courses Required: (see page 3 for Course Descriptions)

Third semester, September 2010

- **CADD 2100** – 3D Graphics, Rendering and Animation
- **CADD 2110** – Surveying and Site Work

Fourth semester, January 2011

- **CADD 2210** – Web Document Control and Portfolio
- **CADD 2250** – CADD Customization and Networks

Additional Resources Required:

Faculty/FTE:

Current CADD faculty possess the skills and experience necessary to deliver the four new courses. Funding required will be .50 FTE per year in addition to the FTE approved in the CADD program 3 year Educational Plan if the program has a 20 student intake. For a 40 student intake (two cohorts) 1.0 FTE will be required.

Classrooms/Labs:

Current space allotted to the CADD program will be sufficient. Second year courses can be scheduled in the evening to provide opportunity for CADD certificate graduates who are working in the industry, and to ensure that classroom / lab space and equipment can meet the needs of the second year courses.

Program Assistant

Due to additional CADD software in the new courses, there will be an additional workload for our CADD Program Assistant of 20%. Software is available through the university Autodesk site licence, but it is not yet installed in our CADD labs.

Program Delivery

The proposed second year can be offered full time or part time, day or evening, depending on student demand and classroom/lab space. There is also a possibility that some of these courses can be delivered online. (We are currently developing our CADD 1160 course online as a prototype.)

Letters of Support: (See Appendix A)

New Courses - Descriptions:

Third semester

Note: changed to 4 credits at Senate meeting

CADD 2100 –CADD Graphics and Models: Rendering and Animation (Credits 3)

Students will render 2D graphics and create 2D perspectives digitally and by hand. They will apply color, texture and shadows digitally and by hand. Students will create digital 3D models, build models from common materials and use photo editing software to insert models into photographs. Students will import 3D models into rendering and animation software and apply lighting and camera locations. They will create motion paths, create flythrough paths and create assembly animations. Students will give presentations of completed projects.

Prequisites: CADA 1250 or CADC 1250 or CADE 1250 or CADI 1250 or CADM 1250 or CADS 1250

CADD 2110 – Surveying and Site Work (Credits 4)

Students will apply surveying fundamentals and use surveying equipment to collect coordinates and elevations. They will use algebra, geometry, trigonometry and introductory calculus to perform surveying calculations. Students will prepare a subdivision drawing and indicate boundaries, access, roads and services. They will indicate contour lines and perform cut and fill calculations. Students will prepare a site layout, determine site grading and drainage, prepare retaining walls and outlines of buildings to complete a site plan drawing. They will use 3D modeling software for Civil applications.

Prerequisites:
(CADD 1100 or DRAF 1100) + (CADD 1110 or DRAF 1110) + (CADD 1150 or DRAF 1150) + (CADD 1160 or DRAF 1160 or DRAF 1270)

Fourth semester

CADD 2210 – Document Control and Web Portfolio (Credits 4)

Students will explain the need for document control and identify roles and responsibilites in document control. They will categorize types of documents and their purposes and implement document control procedures. Students will set up document control websites, create information websites and create portfolio websites. They will participate in online meetings with document and application sharing. Students will give presentations of completed projects.

Prequisites: CADA 1250 or CADC 1250 or CADE 1250 or CADI 1250 or CADM 1250 or CADS 1250

CADD 2250 – CADD Customization and Networks (Credits 4)

Students will explain the need for CADD customization and identify programming languages used with CADD software. They will determine the appropriate programming language for a variety of CADD custom functions, use programming to customize CADD software and use scripting and macros. Students will explain the fundamentals of operating systems and describe command line interfaces and system utilities. They will install CADD software, set-up multi-user CADD local area network (LAN) with client/server, apply permissions and install printers.

Prequisites: CADA 1250 or CADC 1250 or CADE 1250 or CADI 1250 or CADM 1250 or CADS 1250

Computer Aided Design and Drafting (CADD) TECHNOLOGIES
EXISTING 2nd Year Program Structure

PHYQ 1098
(for students who do not have Physics 11)

ENGQ 1099
(recommended for students who do not have English 12 'B'

Semester 1 **Citation**	Semester 2 **Certificate**	Semester 3 **Advanced Certificate**	Semester 4 **Diploma**

CORE

****CADD 1100**
Drafting Fundamentals
CADD 1110
Summative Project (Architectural)
CADD 1150
Autocad
CADD 1160
Office Procedures

ARCHITECTURAL

CADA-1250
BIM Software Arch.
CADA-1200
Arch. Fundamentals
CADA-1210
Single Family Resident
CADA-1220
Commercial

ARCHITECTURAL II

CMNS-1115
Writing for Workplace

CADD-2160
Professional Practice I
CADA-2100
Multi Family Res.
CADA-2150
Advanced BIM Arch

ARCHITECTURAL III

PHYS 1100
Basic College Physics
MATH 1112
Pre Calculus Algebra
CADD-2260
Professional Practice II
CADA-2200
Multi Purpose Build's
CADA-2250
Arch. Rendering

STRUCTURAL

CADS-1250
BIM Software Struct.
CADS-1200
Concrete
CADS-1210
Steel
CADS-1220
Wood

STRUCTURAL II

CMNS-1115
Writing for Workplace

CADD-2160
Professional Practice I
CADS-2100
Site Work
CADS-2150
Advanced BIM Struct

STRUCTURAL III

PHYS 1100
Basic College Physics
MATH 1112
Pre Calculus Algebra
CADD-2260
Professional Practice II
CADS-2200
Pre-Cast Concrete
CADS-2250
3D Steel Software

MANUFACTURING

CADM-1250
3D Parametric Model
CADM-1200
Manuf.. Fundamentals
CADM-1210
Component Assembly
CADM-1220
Integrated Design

MANUFACTURING II

CMNS-1115
Writing for Workplace

CADD-2160
Professional Practice I
CADM-2100
CNC Design
CADM-2150
CNC Software

MANUFACTURING III

PHYS 1100
Basic College Physics
MATH 1112
Pre Calculus Algebra
CADD-2260
Professional Practice II
CADM-2200
Tool and Die Design
CADM-2250
Advanced Modeling

3rd Year
Bachelor of Applied Technology

(pending)

BTech BRIDGE

BUSI 1210

ENGL 1100

NOTE:
Program structures exist for Electrical, Civil and Industrial Specialties also (as approved in the FPP), but are not being offered at this time.

Kwantlen POLYTECHNIC UNIVERSITY

Computer Aided Design and Drafting (CADD) TECHNOLOGIES
PROPOSED Additional 2nd Year Program Structure (Advanced CADD Option)

PHYP 1100
(for students who do not have Physics 11)

ENGQ 1099
(for students who do not have English 12 'B')

Semester 1	Semester 2	Semester 3	Semester 4
Citation	**Certificate**	**Advanced Certificate**	**Diploma**

ARCHITECTURAL

CADA-1250
BIM Software Arch.
CADA-1200
Arch. Fundamentals
CADA-1210
Single Family Resident
CADA-1220
Commercial

CORE

****CADD 1100**
Drafting Fundamentals
CADD 1110
Summative Project (Architectural)
CADD 1150
Autocad
CADD 1160
Office Procedures

STRUCTURAL

CADS-1250
BIM Software Struct.
CADS-1200
Concrete
CADS-1210
Steel
CADS-1220
Wood

MANUFACTURING

CADM-1250
3D Parametric Model
CADM-1200
Manuf.. Fundamentals
CADM-1210
Component Assembly
CADM-1220
Integrated Design

Semester 3
17 credits

MATH 1112 (3 cr)
Pre Calculus Algebra

*** CADD-2160** (4 cr)
Professional Practice

CADD 2100 (3 cr)
3D Presentation Graphics

CADD 2110 (4 cr)
Surveying and Site Work

BUSI 1210 (3 cr)

*CADD 2160
Existing course outline

Semester 4
15 credits

ENGL 1100 (3 cr)
Writing, Reading and Thinking: An Intro.

PHYS 1100 (4 cr)
Basic College Physics

CADD-2210 (4 cr)
Document Control and Web Portfolio

CADD-2250 (4 cr)
CADD Customization and Network

3rd Year
Bachelor of Applied Technology

(pending)

Appendix A

Letters of Support

INDUSTRY (PAC)

Nicole Hlus	Andritz	Electrical
Phil Cunnington	Aplin-Martin	Civil
Greg Creamore	Crystal Technical Services	Mechanical/Manufacturing
Yifeng (Peter) Xu	Cankevin Design	Mechanical/Manufacturing
Farshid Rafiei	David Nairn and Assoc.	Architectural
Kelly Wightman	McElhanney Engineering	Civil/Structural

OTHER INSTITUTIONS

Michael Whitmore	North Island College	Drafting Program
Graham Huckin	Vancouver Vocational College	Drafting Program

***STUDENTS**

Julia Skoczylas	CADD Certificate, April 2009	Industrial
Thomas Sanderson	CADD Certificate, April 2008	Structural
Ranjit Sambhi	CADD Certificate, April 2008	Architectural

*CADD Certificate graduates wishing to complete the CADD Diploma

October 27, 2009

RE: Proposed CADD/Drafting Diploma Program

Dear Joanne Massey,

I have reviewed the proposed CADD/Drafting Diploma course and find it relevant to today's standards for entry level drafters.

Advances in technology have changed what being a Computer Aided Design Drafter means. A modern CADD drafter has skills in 3D design, can use multiple programs in conjunction with each other as well as being confident to manipulate those programs to company standards. Entry level CADD drafters who have experience with graphic models, have hands on experience in the field and understand the need for document control within an office will have greater ease in and office environment. On the flip side employers will be able to spend more time training their new CADD person to company and industry specific drafting conventions without needing to explain simple office procedures.

As a graduate and an active member of the CADD/Drafting industry I fully support the proposed CADD/Drafting diploma program. After 7 years in the industry I have seen an endless need for architectural, structural and mechanical drafters, even in economies as difficult as today's. These industries are open doors to industries such as electrical and environmental, as I have seen from my own experience, when there is a solid foundation of CADD/Drafting practice.

A CADD/Drafting diploma program is greatly needed in industry. The more we can prepare our students for a diverse career, the better off employers will be. Again, this program has 100% of my support.

Sincerely,

Nicole Hlus
Drafter
ANDRITZ AUTOMATION

ANDRITZ AUTOMATION Ltd.
13700 International Place, Suite 100
Richmond, BC V6V 2X8 Canada
Phone: +1 (604) 214 9248
Fax: +1 (604) 214 9249
www.andritzautomation.com

Automation Solutions Headquarters:
ANDRITZ AUTOMATION Inc.
125 Clairemont Avenue, Suite 570
Decatur, GA 30030 USA
Phone: +1 (404) 370 1350
Fax: +1 (404) 378 3813
www.andritzautomation.com

To: Joanne Massey <Joanne.Massey@kwantlen.ca>
From: Phil Cunnington <pcunnington@aplinmartin.com>
Date: 10/22/2009 03:06PM
Subject: RE: Your feedback: new CADD second year option (Advanced CADD)

Hello Joanne,

You have my permission to include my e-mail in your program development proposal.

The continual advances made by software developers (such as AutoDesk) and other companies that provide add-on packages to further manipulate digital data expands the range of individuals likely to be involved with the software. Now we have computer network support staff, IT professionals, and GIS specialists (both field and office based) with different responsibilities for hardware, software and related peripherals, depending on their profession. While there will still be a need for 'designers and drafters' in many different business sectors, their knowledge and skills will continue to vary dramatically as the size and sophistication of the business entity that employs them continues to evolve.

Future technological advances in both hardware and software will no doubt expand the capability of these graphical software applications to include many new and advanced features for the benefit of project owners; manufacturers, contractors and suppliers; as well as the professional and technical staff in engineering, surveying and architectural offices across the country.

Bye for now,

Phil.

From: Joanne Massey [mailto:Joanne.Massey@kwantlen.ca]
Sent: Thursday, October 22, 2009 1:02 PM
To: Phil Cunnington
Subject: Your feedback: new CADD second year option (Advanced CADD)

Hi Phil,

Thank you for your detailed feedback. We have the same concerns that you have.

With your permission I would like to include your email in our proposal to the Kwantlen Senate. Your email indicates that there is not a straightforward answer to these concerns. Our industry is certainly in constant change.

Our Senate likes to see feedback both for and against a proposal as it helps them to understand the issue, and your email covers both good and bad points.

Please let me know if I can include your email in my proposal.

Thank you,
Joanne

Joanne Massey
Dept Chair - CADD Technologies
College of Trades and Technologies
Kwantlen Polytechnic University
Phone: 604-598-6120

www.kwantlen.ca/drafting

-----Phil Cunnington <pcunnington@aplinmartin.com> wrote: -----

To: Joanne Massey <joanne.massey@kwantlen.net>
From: Phil Cunnington <pcunnington@aplinmartin.com>
Date: 10/21/2009 09:46AM
Subject: Support for new CADD second year option (Advanced CADD)

Good morning Joanne,

There is no doubt that the software is becoming much more sophisticated and intuitive for use in different engineering, survey and architectural professions. The software is also being used by many different individuals at all technical levels within these professions. It seems to me that the role of drafting and design are again becoming integrated in many offices. The dilemma that I suspect that many offices experience is that CAD/CADD staff do not have the technical design skills in their particular profession, and that the design staff do not have any training in being able to prepare graphics and drawings to a professional standard. The software has been designed to allow such a wide range of technical applications, that only a few design professionals (with many years of experienced) are able to fully utilise the software. The role of the designer and drafter have now become very blurred in some offices, as technical staff from both areas are now fully involved with the digital files, often causing each other unnecessary headaches. Do we go back to separating the role of design from drafting? If so, then designers and drafters are not fully utilising the power of the software.

I am not sure what the Kwantlen program is trying to achieve. Are you looking at upgrading the technical design skills of CAD/CADD technicians, or to expand the graphics skills of design professionals? In our particular sector (municipal engineering) we have some experienced design professionals who also have excellent graphical presentation skills. However, our experienced CAD/CADD technicians are not able (or licensed) to perform the required design functions. Most of our technical (design and CAD/CADD) staff are not able to utilise the software to its fullest capabilities in either design or graphical representation. I suspect that this situation is probably reflected in many other engineering, survey and architectural offices.

At the end of the day, my concerns will be:

- Will graduates of this post-secondary program find meaningful employment that will utilise most of their technical skills?
- Will their new skills provide improved career opportunities?
- Overlap with courses in other programs?
- Will graduates be satisfied with their investment in a post-secondary experience as it relates to their future careers?
- Will graduates of this program actually continue their educational experience and ladder into other advanced post-secondary programs? Having the opportunity is one thing, actually pursuing it is another.

Lots of room for more discussion, particularly on future laddering.

Bye for now,

Phil.

CTS
Crystal Technical Services Inc.

October 22, 2009

Crystal Technical Services Inc.

843 Whitchurch St.

North Vancouver, BC

V7L 2A5

'To whom it may concern'

Re: Computer Aided Design and Drafting Technologies – 2nd year Proposed Program Structure.

I would like to formally recommend the proposed changes to the CADD Technologies 2nd year program. The update to this program is required due to the fast changing industry workflows. More and more leading companies that use CADD systems are upgrading and integrating the latest software into their corporate workflow. These same companies are requiring skilled software users to bring the new processes and vision to life.

In this current economy there are many in the workforce, looking to upgrade their skills and find employment in these visionary companies. The Canadian government is supportive of additional training and skills upgrades by means of grants and loans. This would enable students to have a more advanced approach and acquire increased CADD skills.

Due to an aging workforce, there is a need to replace these skilled workers. I firmly believe that the CADD Technologies 2nd year program will help to address this issue.

Sincerely,

Greg Creamore

President

Crystal Technical Services Inc.

To: Joanne Massey <joanne.massey@kwantlen.net>
From: xuyifeng <yifengx@hotmail.com>
Date: 10/20/2009 05:25PM
Subject: Support for new CADD second year option (Advanced CADD)

Hi, Joanne,

I fully support the " Advance CADD Program" for SECOND YEAR OPTION. It is suitable for work places application.

Yifeng (Peter) Xu

President Of
Cankevin Technology Ltd.

cankevin@shaw.ca
778-991-5695
12-9688 Keefer Ave,
Richmond, BC V6Y 0B6

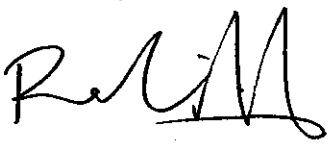
Farshid Rafiei
925 – Grant St.
Coquitlam, BC, V3
October 23, 2009

To whom it may concern:

I have reviewed the proposed new option for second year in the CADD program. In the Architectural industry, 3D modeling, rendering and animation, document control and computer skills are all necessary, and would be an asset in any CADD related industry. These advanced skills would help CADD graduates to move forward in their chosen careers

Please e-mail me at frafiei@davidnairne.com for any additional information you may require.

Sincerely,



Farshid Rafiei
I.A.AIBC, LEED®AP

McElhanney

October 26, 2009

To Whom it May Concern,

After reviewing the proposal for the CADD second year (Advanced CADD Option), in my experience as both a Civil and Structural CADD Technician I believe this option to the program would be a benefit to the industry for Employers. Students that come out of a 1-2 year program do not have the training in Civil 3D. The majority of companies are now immigrating Civil 3D including the Ministry of Transportation and Highways. Document control plays a major role in the way Engineering companies are now working, the way drawings are produced, recorded and distributed, based on changes in software and technology.

It is not always possible to provide CADD training that is a perfect fit. Each and every Engineering company has different ways to they apply Cadd technology. The most efficient way to train CADD operators is to teach them to be flexible and innovative. I feel that the proposed CADD second year option will help to develop these characteristics in students, and provide them with the skills, knowledge and attitude to adapt to changes and advance their careers in whichever CADD specialty area they choose.

Regards,

Kelly Wightman
Sr. Cadd Technician

NORTH ISLAND COLLEGE

Drafting Certificate Program
Campbell River Campus
1685 Dogwood Street
Campbell River, BC V9W 8C1
tel 250.923-9736 | fax 250.923-9703
email michael.whitmore@nic.bc.ca

27 October, 2009

Joanne,

After reviewing the proposed Advanced CADD option that you plan to offer during the second year of your program, I would like to register my support.

Students always need different options that will allow them to react to the current and future needs of Industry as quickly as possible. This option will enable the students to access a wider spectrum of employers.

I wish you luck in your endevours and am looking forward to the day when students enrolled in the Drafting program at North Island College will be able to persue this option in their second year of study.

Regards,

Michael Whitmore, AScT.
Instructor, Drafting Certificate Program
North Island College
Ph: 250-923-9736
Email: Michael.whitmore@nic.bc.ca

Vancouver Community College

Downtown Campus 250, West Pender Street, Vancouver, V6B 1S9

26th October 2009

Re: Proposed Kwantlen CADD Common 2nd year (Advanced CADD)

Vancouver Community College has for many years offered one-year drafting certificate programs focussed on the popular disciplines of Architectural, Civil/Structural, Steel Fabrication, and until recently, Mechanical drafting. On the successful completion of one of these programs, the student has three key decisions to make: whether to seek an entry-level position in the workforce locally or further afield, whether to return to VCC to take a second specialty program for a drafting diploma, or whether to look to further training at other institutions.

The most common course of action has been to seek employment, but many students whose focus is to take their education further have opted for one of the other routes, and several of my students have gone on to take degrees in engineering and in architecture.

Joanne Massey has recently informed me of the proposal to introduce at Kwantlen Polytechnic University a 2nd-year program of study in Advanced CADD. Having seen the outline of the proposed program, it is my view that this program would be attractive to our drafting certificate and diploma students who would like to raise the level of their skills whilst staying on course for a career in drafting.

In my discussions with key people in drafting businesses around the Lower Mainland, it is clear to me that the greater the depth of knowledge about the operation and customization of the software being used, the more valuable a person is to their employer, and the more marketable they are when seeking employment.

If such a program were to run at Kwantlen Polytechnic University, I would see it as another viable option to those VCC graduate students who are keen to take their post-secondary education as far as they can.

Graham Huckin

Head of Drafting Department
Chairperson, BC Colleges Drafting Articulation Committee

October 27, 2009

To Whom It May Concern,

I have been given the opportunity to review the "(CADD) Technologies PROPOSAL for Addition to Program Structure (2nd Year)". The changes and additions proposed would be very useful in both obtaining a job, and performing work in industry.

I graduated with a certificate in CADD Technologies in April of 2009. When I entered the program, I was planning to continue into the second year and receive my diploma. Half way through the second semester, the class was informed that there would be no second year offered due to lack of enrolment. I was very disappointed to hear this. With the economy the way it is, it was disheartening to try to look for work with only a certificate and not the full diploma.

I was fortunate enough to get a job as an entry level civil drafter with BC Hydro. I have had to learn a great deal on the job. With the changes proposed to the second year I believe that other graduates would feel far more comfortable applying for positions, and performing work. Many of the questions I was asked in interview pertained directly to 2 out of the four proposed new courses, with more indirect relation to the remaining fields covered in the proposal

Knowing CADD customization is very important, companies are always trying to use AutoCAD to it's fullest potential to make drafting more efficient. Many people are unfamiliar in the programming languages involved, as well as the installation processes of other CADD software. An understanding in "CADD Customization and Networks" would definitely have given me and edge over other applicants. With this knowledge I could have easily gotten involved with high profile projects involving development of uniform standards and procedures within BC Hydro.

Site work is something that was definitely lacking from the certificate program. Site work is so important in my job, and having little experience with it limits opportunities. It is difficult to be a competent drafter when I cannot visualize what it is I am drafting, especially in the Civil drafting I do. I would benefit greatly from both knowing how surveying is carried out, and reading the resulting drawings.

I conclusion I would be very interested in completing the proposed second year of the CADD Technologies Program and Kwantlen. It will be helpful if the program will be offered part time for students who are already in the field and wish to continue working.

Sincerely,

Julia Anne Skoczylas

THOMAS SANDERSON **604 539 1317**

Apt 113-5401 207th St, patsand@telus.net
Langley. BC
V3A 2E8

October 21, 2009
To whom it may concern
Kwantlen University College

Re: CADD Technologies Proposed additional 2nd year program.

Dear Sir or Madam
I am a graduate of the 2007 – 2008 structural drafting program at Cloverdale campus. I have just reviewed the proposed changes to the CADD Technologies program, (3rd and 4th semesters).
I believe the proposed changes would be of great benefit to myself, and I would certainly be willing to enroll in the new program.
I am one of the more mature students in the "Structural Drafting Program". I am already a Certified journeyman joiner with many years experience. I hold the British City and Guilds certificate in ship joinery. I also hold a certificate of apprenticeship in ship joinery. I enrolled in the Structural drafting course as I wanted a complete change. If I was to change my trade then I decided to change completely and stay away from millwork. Upon graduation last year, I originally started applying for jobs with engineering companies. I came close on a number of occasions, but failed to land a job.
I started broadening my search, and applied for jobs in millwork and others that looked interesting.
It was no surprise when I was offered a job with the Washington Yachting group.
They offered me a job not as a junior, but as a millwork detailer, and designer. At a lot higher pay than a junior I might add.
During my time there I found I could handle the drawing layouts and drafting standards very well. The problem was 3D graphics, presentations, and rendering. I could do orthographic presentations easily. I needed to do perspective and 3D drawings to show the owners what the interiors would look like before work commenced. This year I find myself laid off. I am now once again looking for work in 2 specialty areas, Structural, and Interiors. In the job market I have found many different types of drafting job being advertised. Electrical, Mechanical, Civil. Etc.
I spoke to Joanne Massey earlier this summer looking for advice on which courses to take.
Should I continue with Structural drafting diploma or should I switch to Architectural as that would be more in keeping with my millwork background. Alternately should I switch to B.C.I.T. and enroll in the Interior design program. This new program seems to give me more scope. CADD 2100 would seem to give me more of what I need with 3D graphics and rendering, While CADD 2110 would have a leaning toward Civil drafting. CADD 2260 and CADD 2250 could be useful in any specialty.
For the reasons outlined above I will be concentrating on some math and English upgrading in preparation of the new courses starting up next September.

Yours truly

T. W. Sanderson

Thomas Sanderson

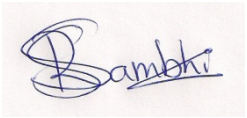
RANJIT SINGH SAMBHI
http://www.rsambhi.byethost33.com
ranjit.sambhi@kwantlen.net

This letter of support is for the four proposed CADD courses (CADD 2100, CADD 2110, CADD 2210, and CADD 2250). These courses are the final pieces to a successful Drafting/CADD program. In the current economy, to find a job, the applicant needs more than just a particular skill. Until now, the Kwantlen Drafting/CADD program instructed how to use the latest software to create construction documents. With the proposed courses, students will be able to create construction and presentation drawings, have an online portfolio, and gain hands on experience by learning about surveying.

The CADD customization and network is something one would normally need to learn from a computer science program, and then apply this knowledge in practical situations at CADD offices. In the CADD 2250 course, students will learn these additional computer skills with the CADD application at the same time.

These courses enable the students to apply in a broader spectrum of employment opportunities, enhancing their progress in their career. Adding four courses like CADD 2100, CADD 2110, CADD 2210, and CADD 2250 will very likely be an asset to Kwantlen's Drafting program, not a liability.

Sincerely,



Ranjit Singh Sambhi

CADD Program Revision

Manufacturing to Mechanical

January 2012

KWANTLEN POLYTECHNIC UNIVERSITY

MEMORANDUM

TO: **Senate**

C:

FROM: Wayne Tebb, Dean, Faculty of Trades and Technology

DATE: January 5, 2012

SUBJECT: CADD Mechanical Specialty

The following request was presented to and passed at the November 30, 2011 SSCC committee meeting. All required revisions noted at that meeting have been incorporated in the text below.

The Computer Aided Design and Drafting department is submitting a request to add a Mechanical Certificate option/stream to the existing program. This new Certificate option will incorporate and combine the most effective, existing courses from the Manufacturing and Industrial Certificate options which reflect industry skills demand. The Mechanical Certificate will replace both the existing Industrial and Manufacturing Certificates. This Mechanical stream is not a new program, however will offer students an option within the existing program streams and current credentials.

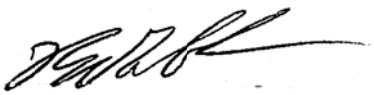
Currently the CADD Technology program offers Architectural, Structural, Industrial and Manufacturing specialties within the second semester. Enrolment in Industrial and Manufacturing have been low and we believe the cause is the lack of understanding of the terms Industrial and Manufacturing as a discipline. The CADD department often receives requests for Mechanical courses. The word 'Mechanical' is a higher level moniker which embraces content of both the Manufacturing and Industrial areas of CADD.

The Mechanical specialty will replace Industrial and Manufacturing and will be an amalgam of the most effective curriculum/training taken from the Industrial and Manufacturing specialties. Please see the attached flow charts. Due to the overlap in content between the Manufacturing and Industrial specialties, previous graduates of the Manufacturing or Industrial Certificate program will be required to complete an additional 7 credits over and above the requirements of the Mechanical option to qualify for the Mechanical Certificate credential. This is to ensure students wishing to receive an additional specialty are not in violation of Kwantlen's policy on second credentials (Policy L.5). The 7 additional credits must be outside of the course requirements of the CADD citation, the Advanced Certificate and the Diploma options. Prior approval of the courses must be obtained from the Chair of CADD and the Dean of Trades and Technology.

An agreed upon start date with the Registrar's Office is May 2012 (with applications opening in Jan 2012), with the first possible graduates of the program not prior to September 2012.

The Certificate in Manufacturing CADD, and the Certificate in Industrial CADD will still remain on the books for students who wish to challenge those Certificates through PLA only. Many students who have already completed other specialties are interested in the Mechanical stream as an additional specialty to add to their dossier. In addition we have seen interest from current CORE (first semester students) even though no official marketing of this new stream has been done.

In order to meet Industry skills demand for the mega projects currently underway we must address those Industry needs and support the students' desires to enter into those fields.



CADD Program Revision

CADD 2220 & Advanced Certificate (removed)

December 2013

KPU | KWANTLEN POLYTECHNIC UNIVERSITY
Faculty of Trades and Technology

Computer Aided Design and Drafting (CADD) TECHNOLOGIES

Proposed Program Revision

December 4 2013

Proposal:

(see page 3 & 4 for graphic charts of existing and proposed program structure)

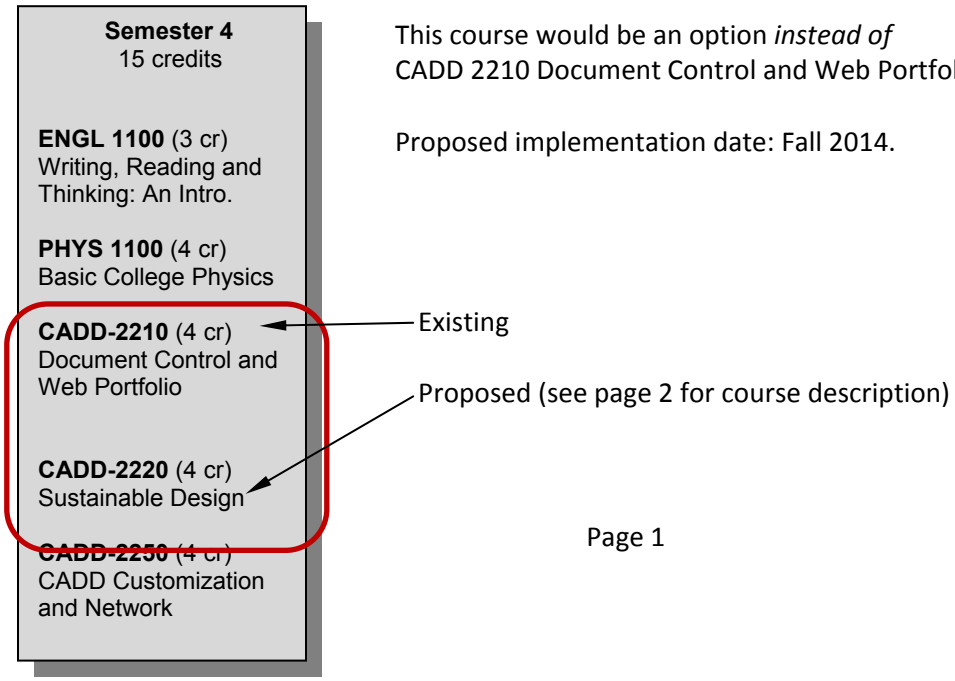
1) Add a second year course (CADD 2220 Sustainable Design) effective Sept. 2014 that will:
   - Add a topic of signifigant current relevance
   - Provide more flexibility for CADD 2nd year students
   - Facilitate articulation with BCIT and TRU Architectural Technology Programs
   - Facilitiate accreditation with the Association of Scientific Technicians and Technologists (ASTTBC) as a Technician

2) Remove the "Advanced Certificate" credential from the CADD Programeffective Sept. 2014. Students who graduate with the Advanced Certificate cannot use these credits towards completion of the Diploma in accordance with policy L.5 Requirements for Graduation because they cannot cede the Advanced Certificate. (Students who have enrolled in the CADD Technologies Program prior to the effective date of Sept. 2014 wills till have the option to graduate with the Advanced Certificate).

3) Change the course offering model in third & fourth semester. Since the second year is fed by students from 3 different cohorts (Architectural, Structural and Mechanical) the second year itself does not follow a cohort model. Once students have all the required courses, they apply for the Diploma.

Procedure (new course CADD 2220):

The proposed course, CADD 2220 Sustainable Design, would be an additional option for the fourth semester of the CADD Diploma program.



This course would be an option *instead of* CADD 2210 Document Control and Web Portfolio.

Proposed implementation date: Fall 2014.

Rationale (new course CADD 2220):

Relevance
To align with the KPU Vision 2018 value statement "Responsible stewardship of resources", sustainable design must be an integral part of our program. In addition to adding the CADD 2220 course we are adding outcome statements to all of our first and second semester courses that promote awareness of sustainable design.

ASTTBC
In a recent review of our program with respect to accreditation by the Canadian Technologies Accreditation Board (CTAB) and the local body ASTTBC, we had to identify 5 Technician level strengths from the list of strengths that have been approved in the National Technology Benchmarks (NTB http://www.cctt.ca/landing_7.asp).

We were able to identify 4 strengths in the current program, so the addition of the CADD 2220 course would give us 5 strengths.

The CADD 2210 course did not contribute in any way to the accreditation, and so we wish to discontinue offering it. It will remain as an active course outline so that the students who have previously taken CADD 2210 can use the credits toward their CADD Diploma.

Articulation with BCIT and TRU
At the June 2013 meeting of the BC Drafting Technologies Articulation Committee (BCDTAC), both the BCIT and TRU Architectural Technology programs made open statements regarding an interest in pursuing articulated laddering with the KPU CADD program.

A review of the current CADD Program in reference to the BCIT and TRU programs has shown that the addition of the CADD 2220 course would contribute significantly to alignment with these programs.

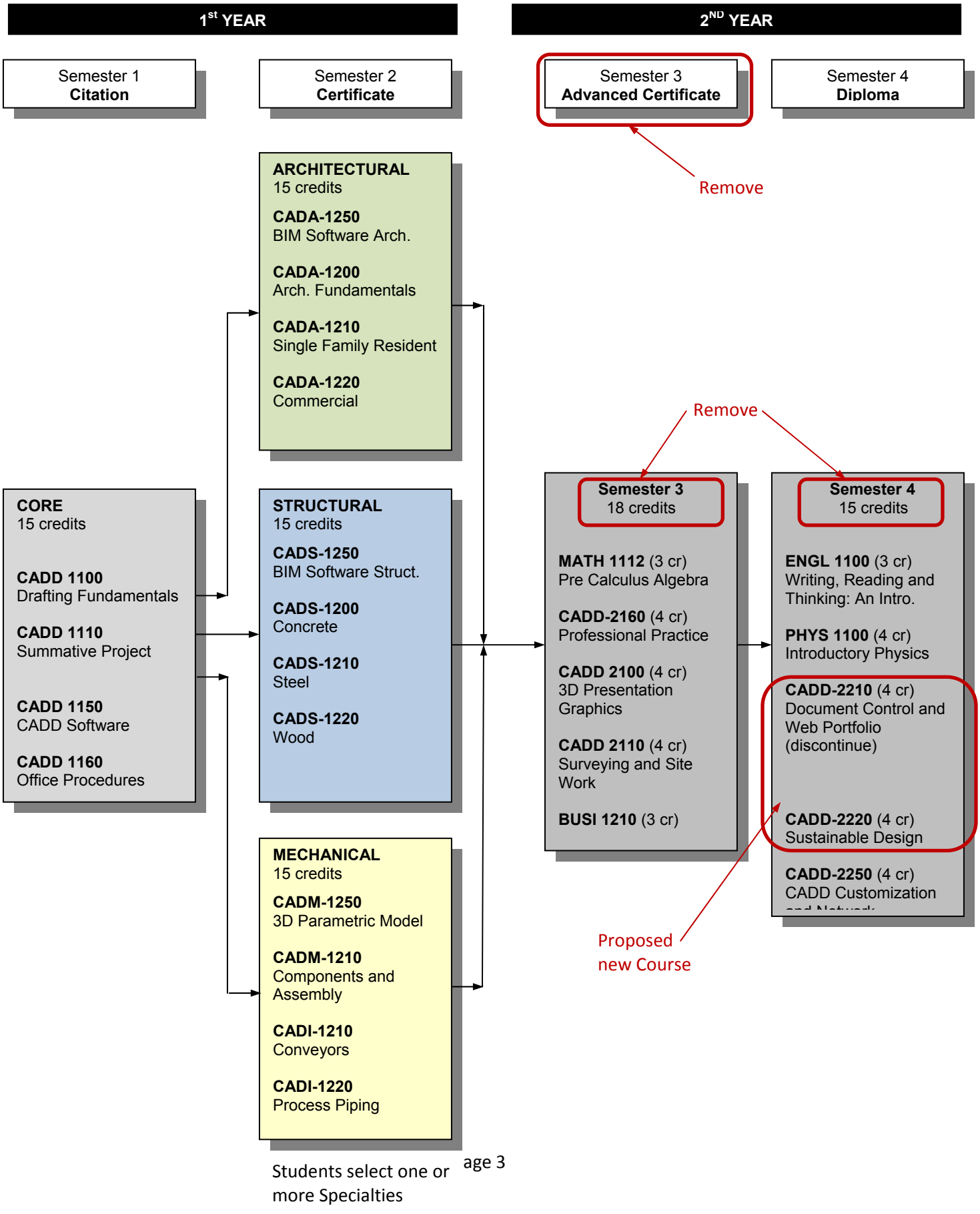
Additional Resources Required: No additional faculty or facility resources are required.

Course Description:

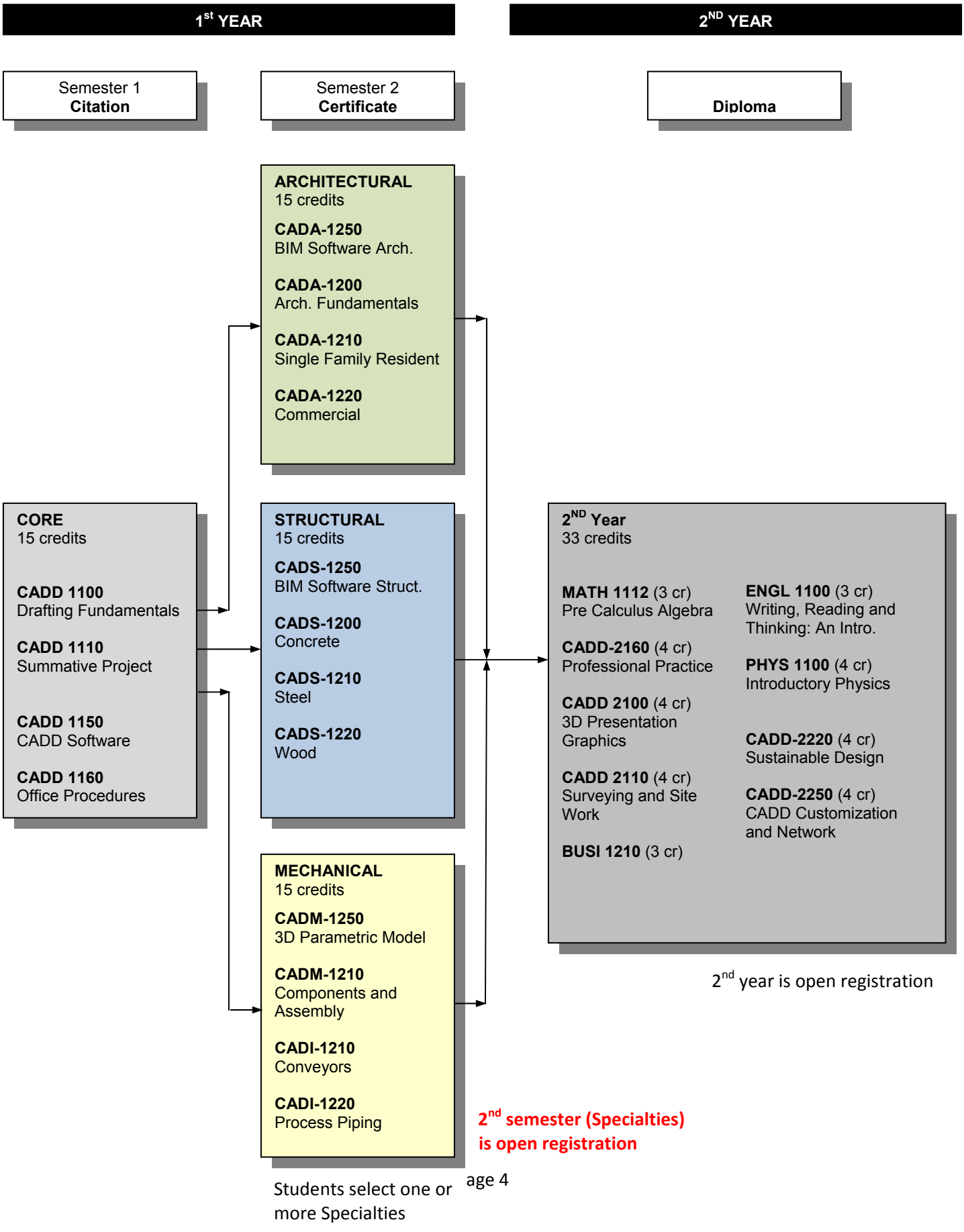
CADD 2220 – Sustainable Design (Credits 4)

Students will describe sustainability, identify environmental issues and areas that are affected and identify municipal, provincial, and federal regulations that pertain to the environment. They will Identify regulatory bodies and their roles, identify environmental impact standards and describe sustainable design certification. Students will evaluate green design strategies and product lifecycle, evaluate environmentally friendly materials and systems and evaluate sustainable materials and fabrication/construction processes. They will interpret output from a variety of efficiency testing software and conduct cost-benefit analysis of sustainable practices and of alternate energy sources

Existing CADD Program Structure



Proposed CADD Program Structure



CADD Program Revision

Credit Changes

April 2015

KWANTLEN POLYTECHNIC UNIVERSITY
CLOVERDALE CAMPUS

5500 – 180th St.
Surrey, BC Canada

MEMORANDUM

TO: Dana Cserepes, Chair SSCC

FROM: Computer Aided Design & Drafting (CADD) Technologies

DATE: March 25, 2015

SUBJECT: Program Revision – CADD Technologies

Rationale:

As a result of articulation, accreditation, and general changes in the CADD industry, we have had to significantly increase and / or change the content in many courses. Three (3) courses in our Program were initially developed as 3 credit courses based on our orginal interpretation of the need at that time. These courses are identified as: CADD 1160, CADA 1200 and CADS 1250. Our current assessment has indicated that these three courses have had course content increases that warrant a change from 3 to 4 credits. We have surveyed Industry and our Department Program Advisory Committee (PAC) to validate this assessment and have been provided with letters of endorsement in that regard (attached). A change in credit value to these courses has initiated the need for new courses, and outlines, to be developed and approved to replace the existing 3 credit courses. Our Diploma Program is affected in that three existing 3 credit courses will be replaced with three new 4 credit courses, and the credit value of our Diploma and other Credentials will be increased accordingly.

Summary of Changes:

Existing Course Name	Credit Value	New Course Name	Credit Value
CADD 1160 – Introduction To Office Procedures and Software	3	CADD 1161 – CADD Office Procedures	4
CADA 1200 – Architectural Fundmentals	3	CADA 1201 – Archtectural Principles	4

CADS 1250 – Introduction To Building Information Model (3D) Software for Structural	3	CADS 1251 – Building Information Modeling (BIM) for Structural	4

Credential	**Existing Credit Count**			**Proposed Credit Count**
	With Architectural Specialty	**With Structural Specialty**	**With Mechanical Specialty**	**All Specialties**
Citation – One Semester	15	15	15	16
Certificate – Two Semesters	30	30	31	32
Diploma – Four Semesters	63	63	64	65

When we undertook the assessment of these courses we found that there are no other comparable programs within KPU or other Institutions with which to make a comparison. When we transitioned from a vocational program to an undergraduate program we introduced both academic and technical rigor that has made our program unique from other vocational drafting courses. We are the only CADD program in BC that provides undergraduate credits and that offers a 2 year diploma program. As a result, we have been able to successfully complete Memorandums of Understanding with both KPU and SFU Engineering Programs and initiate articulation with other Institutions to provide advanced academic pathway options for our graduate students.

This proposed change adheres to KPU Policy L.5.1 which states that a Diploma requires a minimum of 60 semester credit hours, a Certificate requires a minimum of 30 semester credit hours, and a Citation requires a minimum of 15 semester credit hours. In addition, the proposed changes do not affect the time it will take students to complete the various credentials. As per Ministry Guidelines, a Citation will still be completed in 1 Semester, a Certificate in 2 semesters, and a Diploma in 4 semesters.

Implementation Date:

Our target implementation date is September 2015.

KWANTLEN POLYTECHNIC UNIVERSITY
CLOVERDALE CAMPUS

Course by Course Learning Objectives / Outcomes Comparison:

Existing Course	Proposed New / Replacement Course
CADD 1160 – Introduction To Office Procedures and Software • identify and Review MS Office Suite & compatibility • use Autocad interaction with MS Office • edit raster images • use MS Word with Autocad • use MS Excel with Autocad • use MS PowerPoint with Autocad • perform basic office procedures • describe Drafting/CADD disciplines • create a report or presentation on disciplines Implemented Sept 2007	**CADD 1161 – CADD Office Procedures** • use common office software with CADD • integrate raster images with CADD and office software • perform basic office procedures • describe Drafting/CADD disciplines • follow document control procedures • apply time planning and reporting • apply algebraic, geometric and trigonometric functions • prepare a technical report • prepare a personal educational plan • employ computer technology skills for office software and file management • describe sustainable design and practices • explain project management procedures • apply descriptive geometry procedures to solve problems • apply surveying fundamentals to calculate contours, latitude and departure • use graphic editing software • create an e-portfolio
NOTE: As part of the Canadian Technologies Accreditation Board (CTAB) process, the CADD Program has identified “Sustainable Design” and “Project Management” (Based on the PMI definitions) as being two of its five strengths. As a result, significant content has been added to the CADD 1160 Course.	

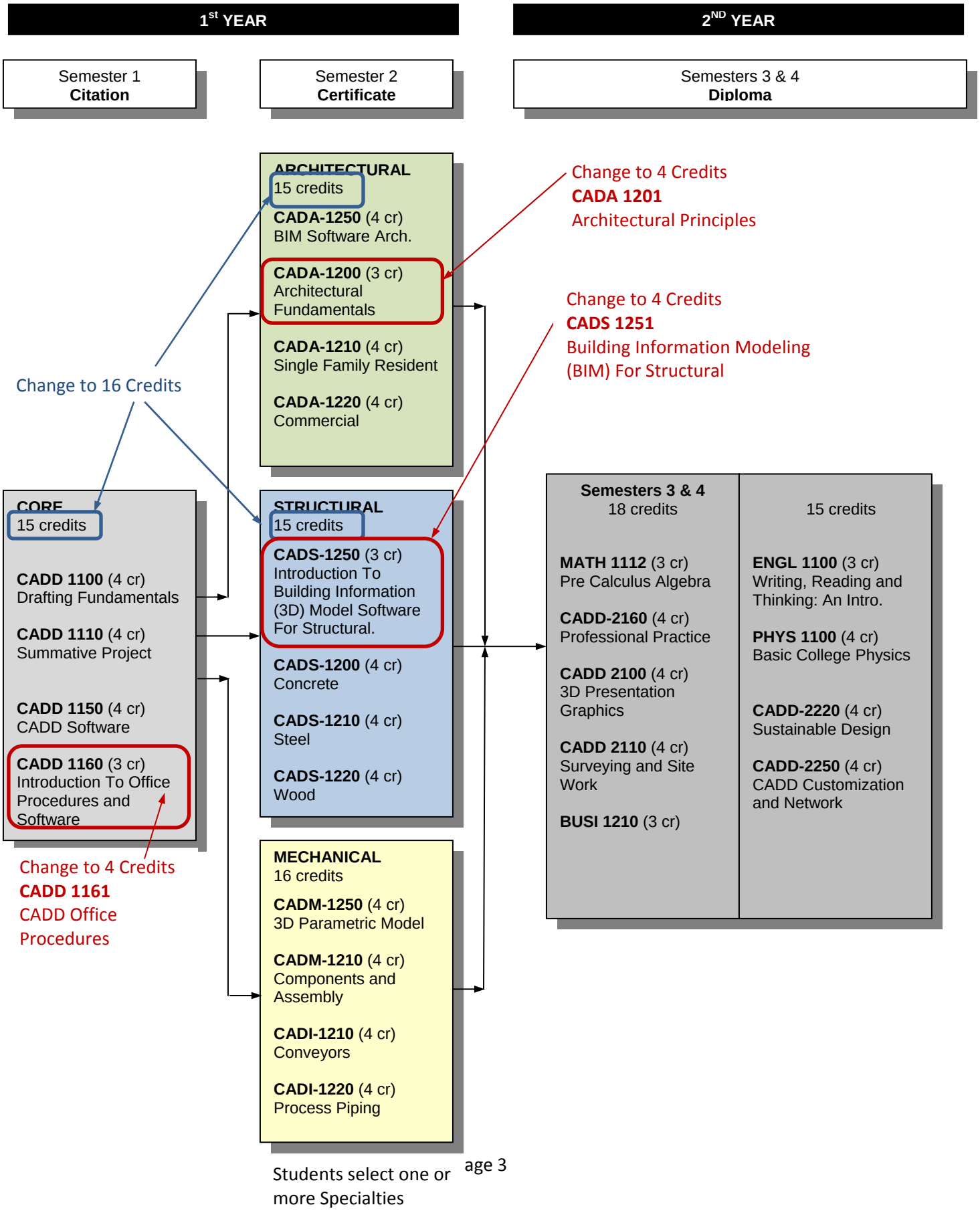
CADA 1200 – Architectural Fundmentals	CADA 1201 – Archtectural Principles
• explain architectural design theory • explain development process • explain design process • identify codes, regulations, and governing bodies • identify construction materials & methods • describe types of building assemblies and applications • describe mechanical, electrical and plumbing (mep) systems Implemented Jan 2008	• Explain architectural fundamentals • Explain development process • Explain design process • Identify codes, regulations, and governing bodies • Identify construction materials and methods • Describe types of building assemblies • Describe applications • Describe mechanical, electrical and plumbing (MEP) systems • Interpret sustainability guidelines • Analyze Energy Efficient Modeling Software • Describe building envelope applications, materials and methods • Develop building envelope detail drawings and specifications

NOTE: As part of the Canadian Technologies Accreditation Board (CTAB) process, the CADD Program has identified "Sustainable Design" as being one of its five strengths. As a result, significant content has been added to the CADA 1200 Course.

CADS 1250 – Introduction To Building Information Model (3D) Software for Structural	CADS 1251 – Building Information Modeling (BIM) for Structural
• identify 3D software for each discipline • identify types of 3D structural software • use 3D sketch software interface • model structural components • combine components to create a building model • identify fundamentals of building modeling • use building information modeling software • identify hierarchies of components • set up drawings • apply annotation • apply scheduling Implemented Jan 2008	• model structural components • combine components to create a building model • identify fundamentals of building modeling • use building information modeling software • identify hierarchies of components • create advanced components • prepare structural connections • apply detailing for engineering drawings • use BIM software to complete a project • set up drawings • apply annotation • apply scheduling

NOTE: There is an increasing use of 3D modeling in the Structural CADD industry since we began our 2 year Diploma in 2007. Initially, this course was titled "Introduction to BIM Modeling Software for Structural" as the Program Proposal outlined a Structural second year course (CADS 2250) that applied the skills acquired in the CADS 1250 course. The CADS 2250 course has never been offered. Instead, a common second year called "Advanced CADD" was developed to better serve the needs of industry. The outcomes from the proposed CADS 2250 course are now being taught in CADS 1250. The credit hours need to be changed to reflect those additional outcomes.

Existing CADD Program Structure



CANADIAN TECHNOLOGY ACCREDITATION BOARD
TABLE 1 - PROGRAM MATRIX - TECHNICIAN

Kwantlen Polytechnic University			Semester 1						Semester 2 Architectural						Semester 2 Mechanical						Semester 2 Structural						Semester 3						Semester 4						
Computer Aided Design and Drafting (CADD) Technician			CADD 1100 Drafting Fundamentals	CADD 1110 Summative Project	CADD 1150 CADD Software	CADD 1160 Office Procedures			CADA 1200 Arch. Fundamentals	CADA 1210 Residential Houses	CADA 1220 Commercial Buildings	CADA 1250 3D for Arch. (BIM)			CADI 1210 Materials Handling	CADI 1220 Process Piping	CADM 1210 Component Assembly	CADM 1250 3D Parametric Modeling			CADS 1200 Concrete	CADS 1210 Steel	CADS 1220 Wood	CADS 1250 3D for Struct (BIM)			CADD 2100 3D Rendering	CADD 2160 Professional Practice	CADD 2110 Surveying	MATH 1112 Pre-Calculus	BUSI 1210		CADD 2220 Sustainable Design	CADD 2250 Networking and Custom.	PHYS 1100	ENGL 1100			
X = this course offers the opportunity to fulfill the Program Outcome																																						
Five Program Strengths (to be presented to the review committee)																																						
Five core courses that best represent each Program Strength selected																																						
National Technology Benchmarks Version used: 2012																																						
Date Program Matrix was created / revised: October 2013																																						
National Technology Benchmarks - Program Outcomes																																						
NTB #		**Extracted from ELM, CS, AB, SG & EV**																																					
1	GC01-T	Communicate clearly, concisely and correctly in writing and in person.				X																						X					X					
2	GC02-T	Apply a wide variety of mathematical techniques with the degree of accuracy required to solve problems and make decisions.																											X	X									
3	GC03-T	Interact with others in groups or teams that contribute to the effective working relationships.	X	X	X	X	X		X	X	X	X			X	X	X	X			X	X	X	X			X	X	X				X	X					
4	GC04-T	Create innovative strategies and/or products that meet identified needs.							X	X	X	X			X	X	X	X			X	X	X	X										X					
5	GC05-T	Understand the basic fundamentals of management principles, ethics, sustainability, contract law, and codes and standards.																										X				X							
6	GC06-T	Obtain and analyze data; prepare reports, plans, specifications, sketches, graphics, drawings, or other technical documentation.					X		X	X	X	X			X	X	X	X			X	X	X	X					X						X				
7	GC07-T	Use computer hardware and software necessary to the performance of tasks within the discipline.	X	X	X	X	X		X	X	X	X			X	X	X	X			X	X	X	X			X	X	X				X	X					
8	GC08-T	Apply knowledge of safe working practices, including Occupational Health & Safety Regulations.																X										X											

This page:
Canadian Technology Accreditation Board (CTAB)

General Outcomes (Technician level)

From National Technology Benchmarks

http://cctt.ca/template.asp?id=18BDB75FF7F644FC858862426781380 9

Following page:
Canadian Technology Accreditation Board (CTAB)

Specific Outcomes (KPU CADD Diploma)

From National Technology Benchmarks

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CANADIAN TECHNOLOGY ACCREDITATION BOARD
TABLE 1 - PROGRAM MATRIX - TECHNICIAN

Kwantlen Polytechnic University

Computer Aided Design and Drafting (CADD) Technician

X = this course offers the opportunity to fulfill the Program Outcome

Five Program Strengths (to be presented to the review committee)

Five core courses that best represent each Program Strength selected

National Technology Benchmarks Version used: 2012

Date Program Matrix was created / revised: October 2013

			Semester 1						Semester 2 Architectural						Semester 2 Mechanical						Semester 2 Structural						Semester 3						Semester 4						
	National Technology Benchmarks - Program Outcomes		CADD 1100 Drafting Fundamentals	CADD 1110 Summative Project	CADD 1150 CADD Software	CADD 1160 Office Procedures			CADA 1200 Arch. Fundamentals	CADA 1210 Residential Houses	CADA 1220 Commercial Buildings	CADA 1250 3D for Arch. (BIM)			CADI 1210 Materials Handling	CADI 1220 Process Piping	CADM 1210 Component Assembly	CADM 1250 3D Parametric Modeling			CADS 1200 Concrete	CADS 1210 Steel	CADS 1220 Wood	CADS 1250 3D for Struct (BIM)			CADD 2100 3D Rendering	CADD 2160 Professional Practice	CADD 2110 Surveying	MATH 1112 Pre-Calculus	BUSI 1210		CADD 2220 Sustainable Design	CADD 2250 Networking and Custom.	PHYS 1100	ENGL 1100				
	NTB #	**Extracted from ELM, CS, AB, SG & EV**																																				
9	ELM01-T	Fabricate Components: Fabricate mechanical components; assemble electrical components and electronic assemblies.															X																					
10	ELM02-T	Drawing Production: Produce electrical, electronic, and mechanical drawings and other related documents and graphics to appropriate engineering standards.	X	X	X				X	X	X	X			X	X	X	X			X	X	X	X			X		X									
11	ELM05-T	Manufacturing and Handling: Assist in the specifying of manufacturing materials, processes, and operations.															X																					
12	ELM10-T	Inventory and Documentation Systems: Establish and maintain inventory, records, and documentation systems.																										X					X					
13	CS05-T	Network Components: Install, troubleshoot, and maintain network components.				X																						X						X				
14	CS08-T	Security: Apply knowledge of security issues to the implementation of information technology solutions.																																X				
15	CS07-T	Data Storage: Monitor data storage procedures designed to ensure the integrity of information.																																X				
16	AB03-T	Project Management: Apply the principles of project management to plan, schedule and monitor projects				X				X	X				X	X	X				X	X	X					X										
17	AB01-T	Architectural Drawings: Prepare complete sets of architectural drawing for residential and light commercial construction/renovation projects.							X	X	X	X																										
18	AB02-T	Building Design and Detailing: Apply the basic architectural principles in building design and detailing.							X	X	X	X																										
19	AB04-T	Building Science: Apply the principles of building science and construction engineering to analyze and solve technical problems related to construction projects.							X	X	X	X																										
20	AB09-T	Codes, Bylaws, and Regulations: Apply knowledge of applicable building codes, zoning bylaws, and regulations.							X	X	X	X																										
21	AB11-T	CAD Systems: Apply good working knowledge of CAD systems.							X	X	X	X			X	X	X	X			X	X	X	X			X		X									
22	AB12-T	Sustainable Energy and Environmental Design: Apply the principles of sustainable energy and environmental design in building construction projects.		X		X			X	X	X	X			X	X	X				X	X	X					X					X					
23	SG01-T	Geospatial Terrain Data: Collect, interpret, and use geospatial terrain data from existing digital, hardcopy and non-traditional sources, reports, and other geo-related documents.																											X								
24	SG02-T	Survey Data: Assist in the collecting and processing of survey data using GPS equipment.																											X								
25	SG03-T	GIS Data: Communicate information by interpreting, translating, and presenting geomatics data.																											X								
26	EV07-T	Occupational Health and Safety: Carry out work in adherence to Occupational Health and Safety regulations.																										X									

Letters of Support:

Letters of Support for this Program Revision and the preparation of the associated new Course Outlines were provided by four (4) members of the CADD Technologies Program Advisory Committee (PAC). On December 4, 2014 the CADD Department hosted a CADD Alumni Dinner Gala at KPU Tech Cloverdale to which our PAC was also invited. An informal PAC meeting was held after this event where minutes were not taken. The attendees were briefed on this specific proposal and we received their informal endorsement. 4 members in attendance agreed to study a Proposal Outline and copies of both the Existing and Proposed New Course Outlines for the 3 courses affected. They requested a sample of the type of endorsement letter that would be appropriate and one was provided to them. If the letters contain or appear to contain any similarity it can be attributed to this. The participants are all industry experts and remain willing to be contacted should it be required.

December 15th, 2014

Re: Proposed Course Outline and Course Credit Changes to:

CADD1160 Office Software and Procedures – 3 Credits

CADA 1200 Architectural Fundamentals – 3 Credits

CADS 1250 3D Modeling (BIM) Software for Structural – 3Credits

I am a current member of the KPU CADD Department Program Advisory Committee (PAC) and have been asked to review the changes and rationale proposed to us for the existing courses as identified. I have reviewed the Course Outline updates for the courses involved and the rationale letter prepared on June 24, 2014 to explain the proposal. I would like to endorse these revisions on the basis that they reflect current industry expectations and will provide acknowledgement to the students for the work that they have completed in these courses.

If you require further information please contact me at WhiteWater West Industries Ltd. at 604-273-1068 ext.199 or carmen.feldman@whirwwaterwest.com.

Thank you,

Carmen Feldman

Designer – Play Structures, Engineering

WhiteWater West Industries Ltd.

www.whitewaterwest.com

T: +1.604.273.1068 ext.199

McElhanney

December 10, 2014

Re:

Proposed Course Outline and Course Credit Changes to:

- CADD 1160 Office Software and Procedures
- CADA 1200 Architectural Fundamentals
- CADS 1250 3D Modelling (BIM) Software for Structural

Letter of Endorsement for the revisions to the above noted courses

Dear Sir:

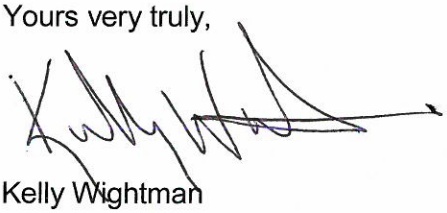
I am currently an active member of the KPU CADD Department Program Advisory Committee (PAC). I have been asked to review the changes and rationale for the existing courses as noted.

I have reviewed the courses and Course Outlines updates for the courses involved and the rationale letter prepared June 24, 2014 that explains the proposal.

I would like to endorse these revisions on the basis that they reflect current industry expectations and will provide the students with the skills necessary to be successful in industry.

If you require further information, please do not hesitate to contact me.

Yours very truly,



Kelly Wightman

McELHANNEY ENGINEERING SERVICES LTD.

Kelly Wightman
Senior CADD Technician
Suite 2300 Central City Tower
13450 – 102 Avenue
Surrey, B.C. V3T 5X3
T 604.596.0391 D 604.424.4908
kwightman@mcelhanney.com

Nicole Hlus
Project Support Services Manager

Proposed Course Outline and Course Credit Changes to:
CADD 1160 Office Software and Procedures
CADA 1200 Architectural Fundamentals
CADS 1250 3D Modeling (BIM) Software for Structural

As a member of the KPU CADD Program Advisory Committee I have been asked to review the proposed changes to the course credits identified above. Looking into the course credits, I support the proposed changes as they are concurrent with industry standards and reflect the effort of the students more accurately.

For any questions or concerns I can be contacted at the following:

Nicole Hlus
Project Support Services Manager
Ph: 604 419 5216
Email: Nicole.hlus@autopro.ca

APEX
WESTERN HOMES LTD.
604-990-3520

#104 - 1515 BARROW STREET
NORTH VANCOUVER, B.C.
V7J 1B7

TELEPHONE: 604-990-3520
FAX: 604-986-9906

December 15, 2014

Re: **Proposed Course Outline and Course Credit Changes** to:

CADD 1160 Office Software and Procedures - 3 Credits
CADA 1200 Architectural Fundamentals - 3 Credits
CADS 1250 3D Modeling (BIM) Software for Structural - 3 Credits

To whom it may concern,
I am a current member of the KPU CADD Department Program Advisory Committee (PAC) and have been asked to review the changes and rationale proposed to us for the existing courses as noted above. I have reviewed the Course Outline Updates for the courses involved and the rationale letter prepared on June 24, 2014 to explain the proposal. I would like to endorse these revisions on the basis that they reflect current industry expectations and will provide acknowledgement to the students for the work that they have completed in these courses.

If you require further information from me, please contact me at 604-868-9264.

Thank you,

Best regards,

Richard Dyck
Design Manager

APPENDIX D

Marketing:

CADD Program Brochure (2015)

Working Grads – 2014 Calendar

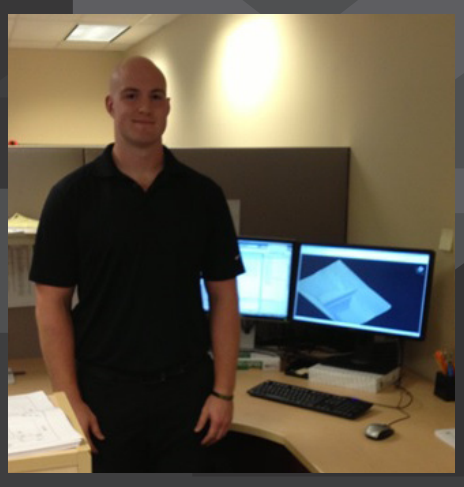
KPU | KWANTLEN POLYTECHNIC UNIVERSITY

kpu.ca

KPU

CADD Technologies

2014 Student and Graduate Calendar

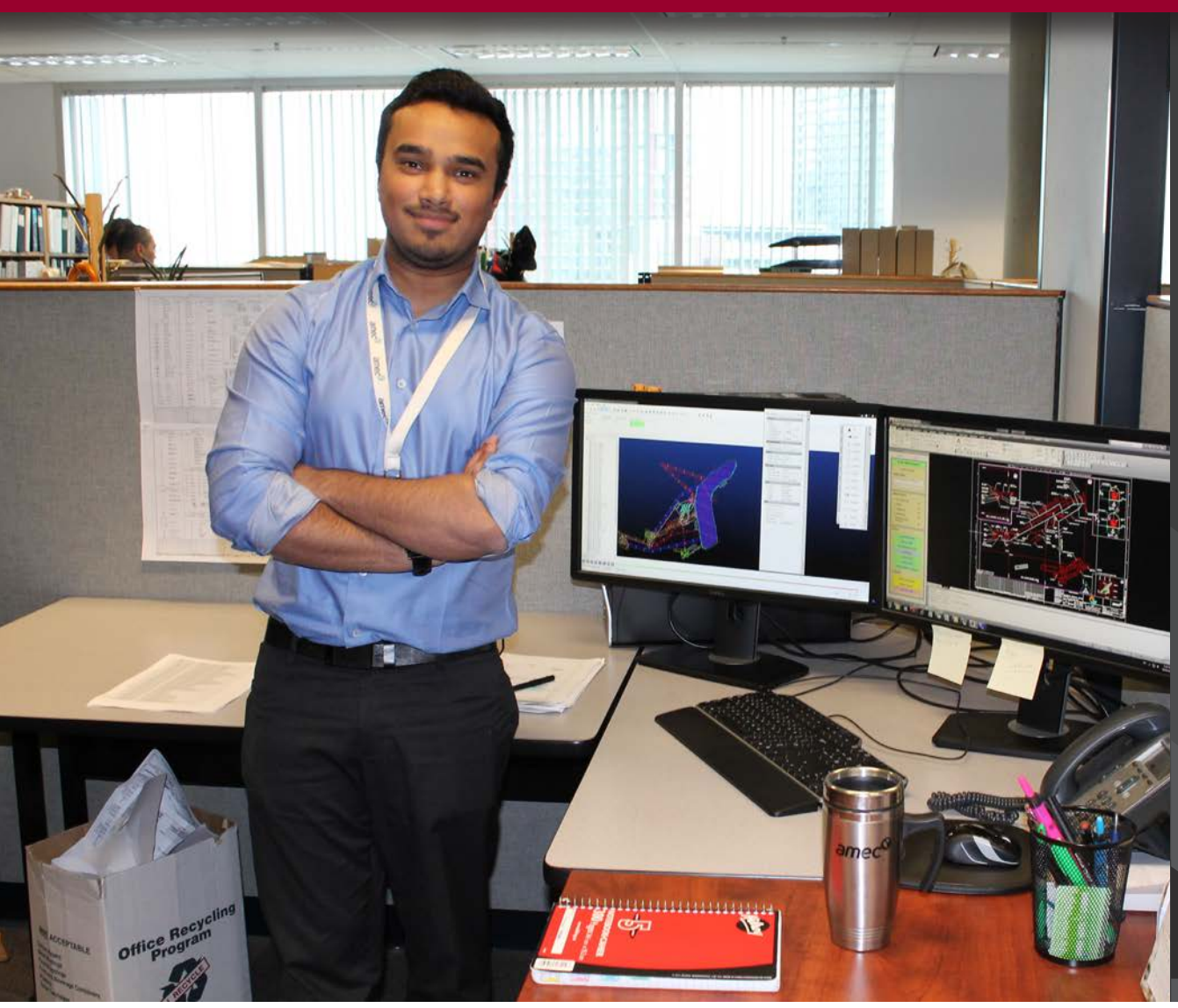


KPU

kpu.ca/trades/cadd

CADD Technologies

Kwantlen Polytechnic University
KPU Tech
5500 180th Street, Surrey BC
cadd@kpu.ca



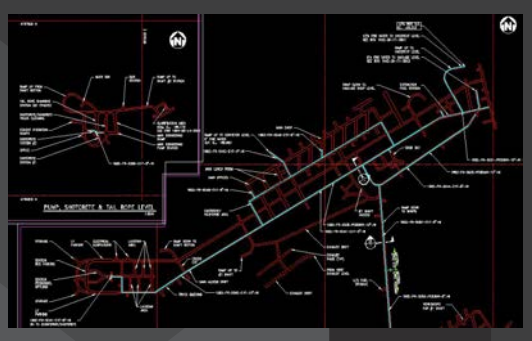
Graduate: Georgie V,
High School Partnership Student

Speciality: Architectural/ Mechanical/Structural

Working in: Mechanical Engineering

Position: CADD Designer

"Everything I learned from the CADD program is used in my job today. I am very excited to work on such world changing projects."



For more testimonials visit:
kpucaddblog.ca

JANUARY 2014

SUN	MON	TUES	WED	THURS	FRI	SAT
DECEMBER 2013 S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31	FEBRUARY S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28		1 New Year's Day	2	3	4
5	6 CADD Core and Structural begin	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31 Lunar New Year	

CADD Technologies

Kwantlen Polytechnic University
KPU Tech
5500 180th Street, Surrey BC
cadd@kpu.ca

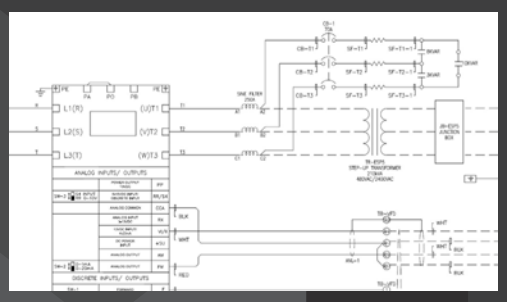
Graduate: Dale M,
High School Partnership Student

Speciality: Architectural/ Mechanical

Working in: Electrical Engineering

Position: CADD Designer

"Because of the way KPU CADD second year courses are set up, I was able to work in the field while completing the second year credentials."



For more testimonials visit:
kpucaddblog.ca

FEBRUARY 2014

SUN	MON	TUES	WED	THURS	FRI	SAT
JANUARY S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31	MARCH S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31					1
2	3	4	5	6	7	8
9	10 Family Day	11	12	13	14 Valentine's Day	15
16	17	18	19	20	21	22
23	24	25	26	27	28	

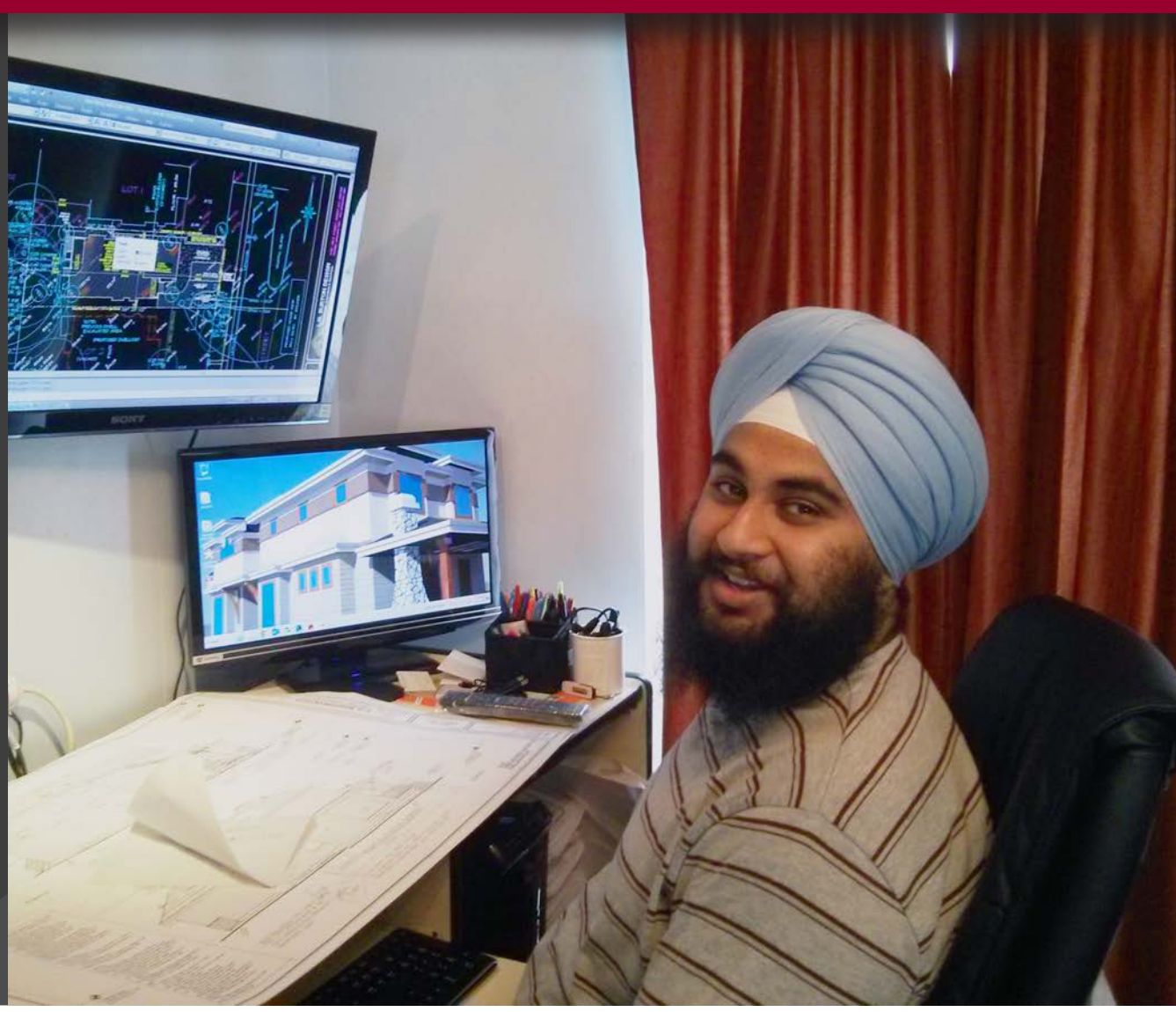
CADD Technologies

Kwantlen Polytechnic University
KPU Tech
5500 180th Street, Surrey BC
cadd@kpu.ca

Graduate: Ranjit S
Speciality: Architectural
Working in: Custom Home Design
Position: CADD Drafter

"I would recommend the KPU CADD program to all students who enjoy learning in a fun yet educational environment."

For more testimonials visit:
kpucaddblog.ca



MARCH 2014

SUN	MON	TUES	WED	THURS	FRI	SAT
FEBRUARY S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28	APRIL S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30					1
2	3	4	5	6	7	8
9 Daylight Savings	10 Commonwealth Day	11	12	13	14	15
16	17 St. Patrick's Day	18	19	20	21	22
23 30	24 31	25	26	27	28	29

CADD Technologies

Kwantlen Polytechnic University
KPU Tech
5500 180th Street, Surrey BC
cadd@kpu.ca

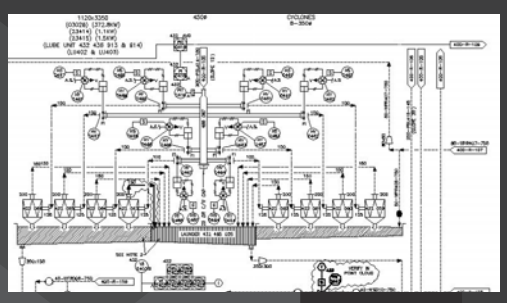
Graduate: Shenesse W,
High School Partnership Program

Speciality: Architectural/
Mechanical

Working in: Process Engineering

Position: CADD Designer

"I would recommend the KPU CADD program to all students who are interested in gaining rounded exposure to the various fields and directions of CADD."



For more testimonials visit:
kpucaddblog.ca

APRIL 2014

SUN	MON	TUES	WED	THURS	FRI	SAT
MARCH S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31	MAY S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31	1 April Fool's Day	2	3	4	5
6	7	8	9	10 Qualifying Assessment	11	12
13	14	15	16	17	18 Good Friday	19
20 Easter Sunday	21 Easter Monday	22	23	24	25	26
27	28	29	30			

CADD Technologies

Kwantlen Polytechnic University
KPU Tech
5500 180th Street, Surrey BC
cadd@kpu.ca

Student: Janna D

CADD student Janna D was a member of the “KPU Builds” team, a group of 17 KPU s tudents who travelled to Fiji for the Habitat for Humanity “ Bula Build”.

Janna D (pictured right) poses with Anna, a native Fijian, who was the foreman of Janna’s build team

For more testimonials visit:
kpucaddblog.ca

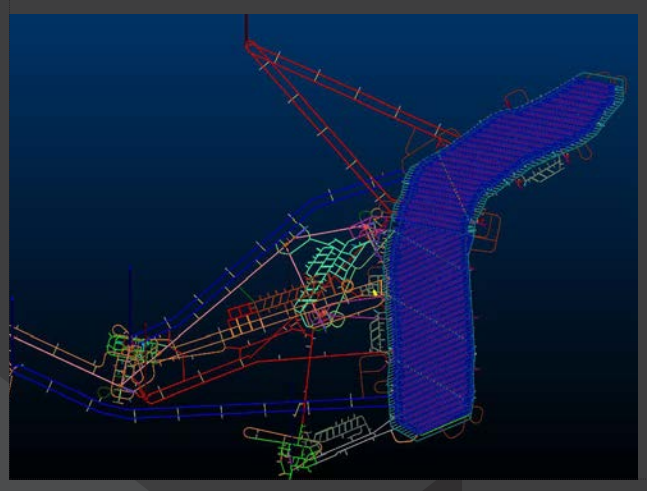
MAY 2014

SUN	MON	TUES	WED	THURS	FRI	SAT
APRIL S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30	JUNE S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30			1	2	3
4	5 CADD Core and Mechanical begin	6	7	8	9	10
11 Mother’s Day	12	13	14	15	16	17
18	19 Victoria Day	20	21	22	23	24
25	26	27	28	29	30	31

CADD Technologies

Kwantlen Polytechnic University
KPU Tech
5500 180th Street, Surrey BC
cadd@kpu.ca

Field trip to Highland Valley Copper Mine
Logan Lake, BC



For more testimonials visit:
kpucaddblog.ca

JUNE 2014

SUN	MON	TUES	WED	THURS	FRI	SAT
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15 Father's Day	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					

MAY

S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

JULY

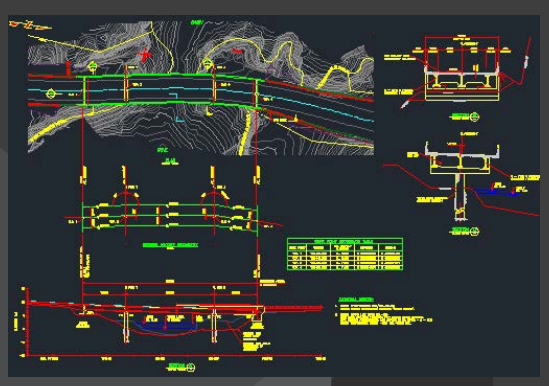
S	M	T	W	T	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

CADD Technologies

Kwantlen Polytechnic University
KPU Tech
5500 180th Street, Surrey BC
cadd@kpu.ca

Graduate: Kyle V
Speciality: Architectural
Working in: Civil Engineering
Position: CADD Designer

"My instructors gave me the opportunity to acquire skills that I am able to utilize every day at work."



For more testimonials visit:
kpucaddblog.ca

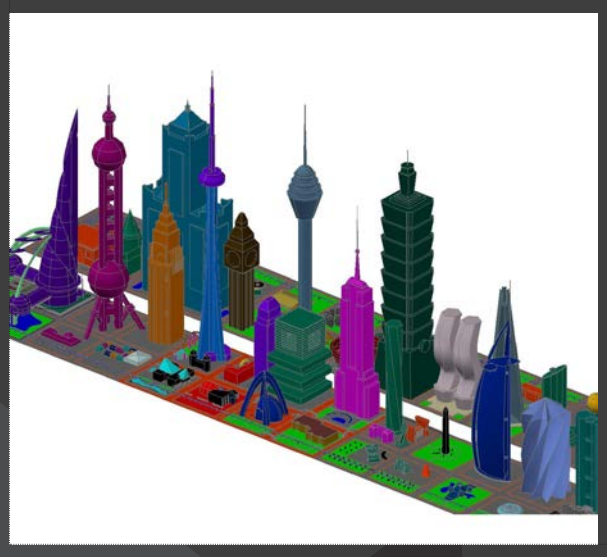
JULY 2014

SUN	MON	TUES	WED	THURS	FRI	SAT
JUNE S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30	AUGUST S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31	1 Canada Day	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

CADD Technologies

Kwantlen Polytechnic University
KPU Tech
5500 180th Street, Surrey BC
cadd@kpu.ca

High school Partnership CADD students in grades 11 and 12.



For more testimonials visit:
kpucaddblog.ca

AUGUST 2014

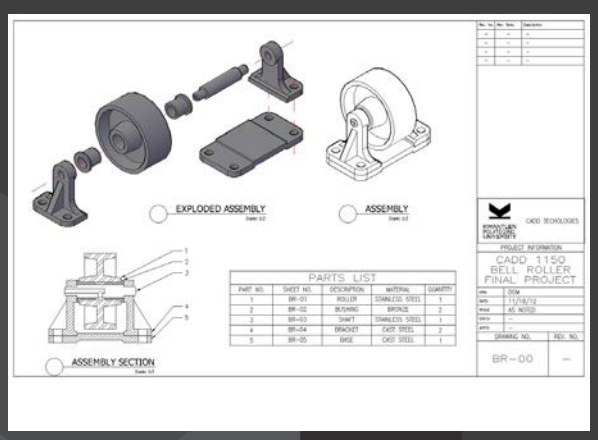
SUN	MON	TUES	WED	THURS	FRI	SAT
JULY S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31	SEPTEMBER S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30				1	2
3	4 BC Day	5	6	7 Qualifying Assessment	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24 31	25	26	27	28	29	30

CADD Technologies

Kwantlen Polytechnic University
KPU Tech
5500 180th Street, Surrey BC
cadd@kpu.ca

Student: Jeffrey L

"With my Drafting 12, I was able to challenge the CADD 1100 Qualifying Assessment and earn 4 undergraduate credits and advanced standing in the CADD program"



For more testimonials visit:
kpucaddblog.ca

SEPTEMBER 2014

SUN	MON	TUES	WED	THURS	FRI	SAT
	1 Labour Day	2 CADD Core and Architectural begin	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30				

AUGUST

S	M	T	W	T	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

OCTOBER

S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

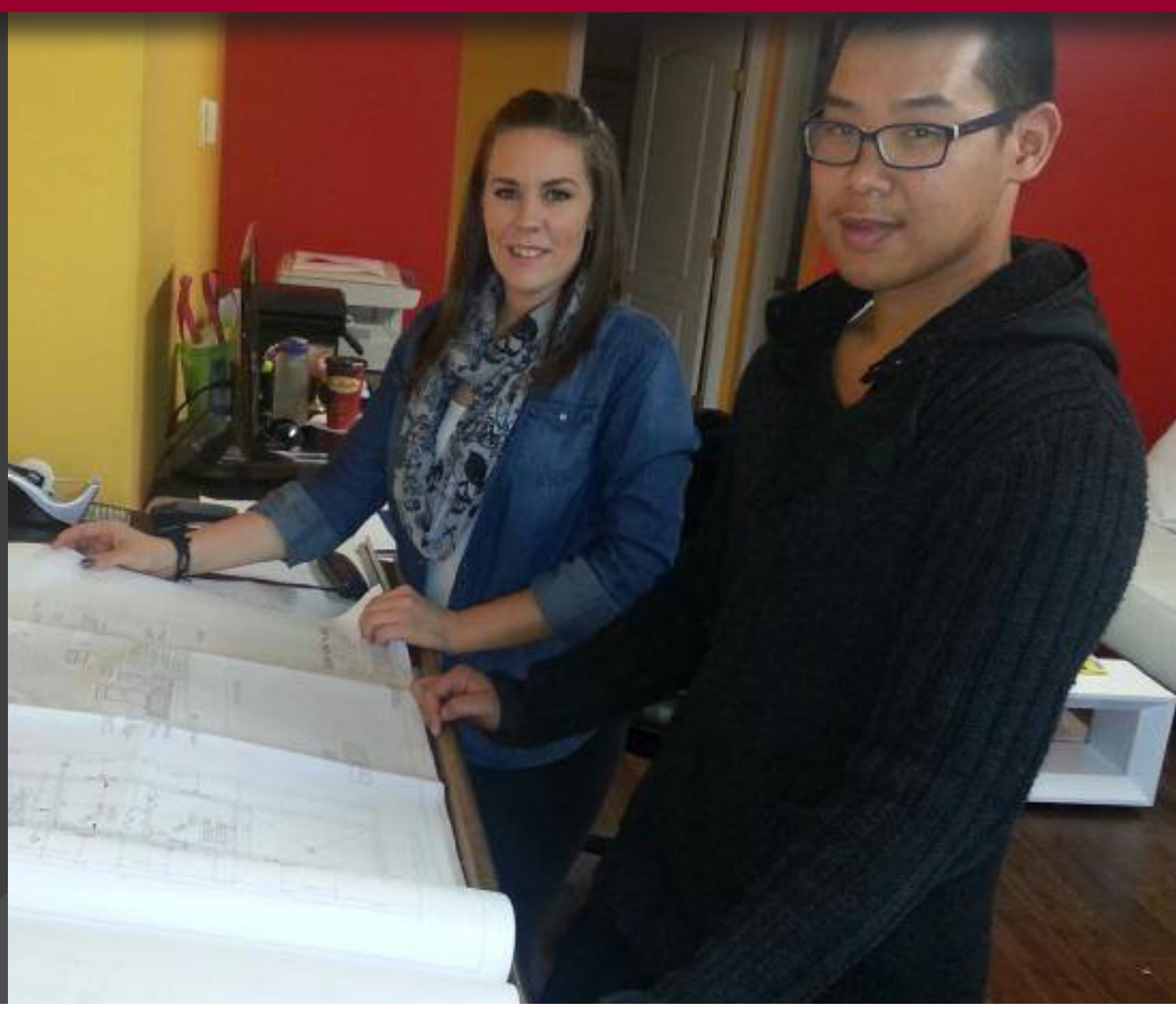
CADD Technologies

Kwantlen Polytechnic University
KPU Tech
5500 180th Street, Surrey BC
cadd@kpu.ca

Student: Janna D and The Kiet T
Speciality: Architectural
Working in: Custom Home Design
Position: CADD Designers

"Working with other KPU CADD grads is seriously fun. When it comes to drawing standards, we are on the same page."

For more testimonials visit:
kpucaddblog.ca



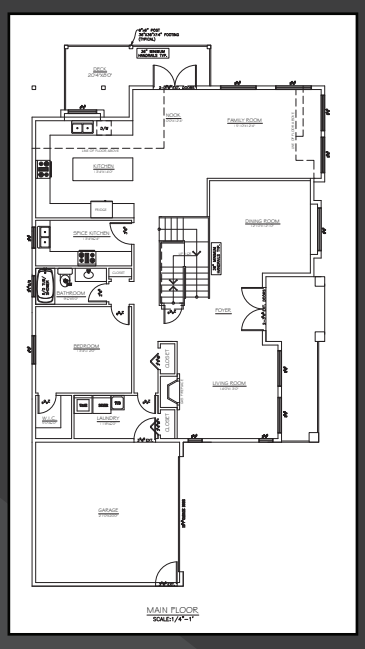
OCTOBER 2014

SUN	MON	TUES	WED	THURS	FRI	SAT
SEPTEMBER S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30	NOVEMBER S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30		1	2	3	4
5	6	7	8	9	10	11
12	13 Thanksgiving Day	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31 Halloween	

CADD Technologies

Kwantlen Polytechnic University
KPU Tech
5500 180th Street, Surrey BC
cadd@kpu.ca

Field trip to Home Depot



For more testimonials visit:
kpucaddblog.ca

NOVEMBER 2014

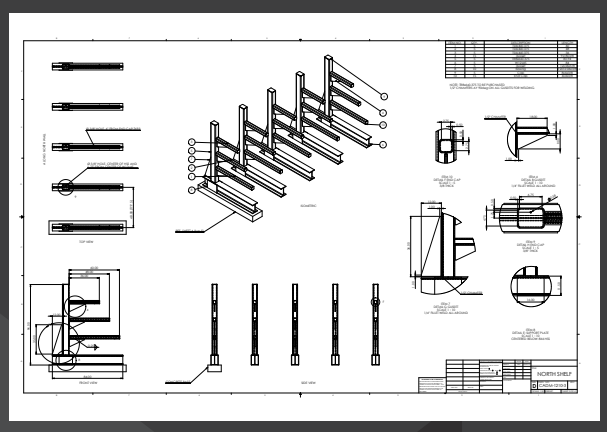
SUN	MON	TUES	WED	THURS	FRI	SAT
OCTOBER S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31	DECEMBER S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31					1
2 Daylight Savings	3	4	5	6	7	8
9	10	11 Remembrance Day	12	13	14	15
16	17	18	19	20	21	22
23 30	24	25	26	27	28	29

CADD Technologies

Kwantlen Polytechnic University
KPU Tech
5500 180th Street, Surrey BC
cadd@kpu.ca

Hands On: CADD Mechanical Specialty

Students participate in a Design/ build project.



For more testimonials visit:
kpucaddblog.ca

DECEMBER 2014

SUN	MON	TUES	WED	THURS	FRI	SAT
	1	2	3	4	5	6
7	8	9	10	11 Qualifying Assessment	12	13
14	15	16	17 Hanukkah Starts	18	19	20
21	22	23	24 Christmas Eve	25 Christmas Day	26 Boxing Day	27
28	29	30	31 New Year's Eve			

NOVEMBER

S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30						

JANUARY 2015

S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

Undergraduate Diploma

YEAR 1

Semester 1
CADD Core (Citation)

Entrance Requirements

'C' in Principles of Math 11 or Foundations of Math 11 or Pre-Calculus 11

'C' in English 12

CADD Core
(Jan, May & Sept)

CADD 1100
Drafting Fundamentals

CADD 1110
Summative Project

CADD 1150
CADD Software

CADD 1160
Office Procedures

Semester 2
*Specialties (Certificate)

STRUCTURAL
(January)

CADS 1200
Concrete

CADS 1210
Steel

CADS 1220
Wood

CADS 1250
3D for Structural

MECHANICAL
(May)

CADI 1210
Conveyors

CADI 1220
Process Piping

CADM 1210
Components

CADM 1250
3D Modeling

ARCHITECTURAL
(September)

CADA 1200
Arch. Fundamentals

CADA 1210
Residential

CADA 1220
Commercial

CADA 1250
3D for Architectural

*Students may take more than one specialty

YEAR 2

Semester 3
2nd Year

Upgrading if Required

CADD Semester 3
(September)

CADD 2160
Professional Practice

CADD 2110
Surveying

CADD 2210
Web Portfolio

BUSI 1210
Essentials of Management

MATH 1112
Pre-Calculus Algebra

Semester 4
2nd Year (Diploma)

CADD Semester 3
(January)

CADD 2100
3D Rendering

CADD 2250
Networking and Customization

PHYS 1100
Introductory Physics

ENGL 1100
Writing, Reading & Thinking

KPU

kpu.ca/trades/cadd

APPENDIX E

High School Partnership – Career Technical Consortium (CTC)

Sample CTC Agreement

CTC Orientation for students and parents

CTC Handbook for Students

CTC Brochure

NOTES

The sample agreement included in this package was signed in January 2008 by the following school districts:

Langley - #35
Surrey - #36
Delta - #37
Richmond - #38

This agreement is between Kwantlen University College Computer Aided Design and Drafting (CADD) Technologies, and the four School Districts in the Career Technical Consortium (CTC). The four School Districts in the CTC are Delta, Langley, Richmond and Surrey. There will be a separate agreement for each School District as details vary between districts.

This agreement will provide a pathway for secondary school students who show an aptitude in Drafting/CADD studies. Partnership students can complete courses in the first semester (CORE) of the Kwantlen University College CADD Technologies Diploma program while attending Secondary School in Grades 11 and 12. The student will receive a Kwantlen Citation upon successful completion of the CORE.

This agreement will build a strong relationship between the Kwantlen CADD program and secondary school Drafting programs and students. It will facilitate transition for secondary students to move seamlessly into the second semester of Kwantlen's CADD program after completing Grade 12 by granting by both Secondary and Post Secondary credits to successful students.

Target Students include Grade 11 and 12 Secondary School students demonstrating an interest in Drafting/CADD, Architecture, Engineering or Interior Design.

Models

A) Full Time

CTC students attend one full semester starting in September and earn 15 credits while completing all four courses in the Kwantlen CADD Technologies first (CORE) semester. This leads to a Citation in CADD Technologies. Courses included are

CADD 1100 (4 credits)	4 PSI* Credits	*(Post Secondary Institution)
CADD 1110 (4 credits)	4 PSI Credits	
CADD 1150 (4 credits)	4 PSI Credits	
CADD 1160 (3 credits)	3 PSI Credits	

B) Part Time

CTC students attend one course per semester in the later afternoon (4 – 7 pm) two nights per week. Courses included are

CADD 1110 (4 credits)	4 PSI Credits
CADD 1150 (4 credits)	4 PSI Credits
CADD 1160 (3 credits)	3 PSI Credits

Part time students can earn the other four credits required to earn a Citation in CADD Technologies by writing the CADD 1100 Qualifying Assessment. Please see page 3 for more details on the Qualifying Assessment

Details

- Eligibility for CTC Partnership
  - This partnership opportunity is available to all students in the four School Districts.
  - Candidates can be recommended for this partnership opportunity by secondary school Drafting Teachers or Career Facilitators.
  - Candidates may identify themselves as a result of promotional material or information provided to students by Kwantlen CADD Technologies (school visits, Trading Up, etc)

- Tuition:
  School Districts will pay the Kwantlen tuition on behalf of the CTC student.

- Continuation:
  Upon successful completion of the CADD CORE the student is eligible to continue in the CADD specialty of his/her choice at Kwantlen provided he/she has the prerequisites as outlined in the Calendar. Tuition for the Specialty semester(s) will be the responsibility of the student. CTC students will be given preference into the specialty of their choice, as available. Kwantlen cannot guarantee the offering of the specialty requested by the student at a particular time.

- Progress Reports
  Kwantlen faculty will provide an interim progress report during the 8th week of the semester, and a final mark and report during the week after the 15th (final) week of the semester. CTC students must sign a release/waiver form in order for Kwantlen faculty to provide progress reports to the secondary school.

Student Application Process

- Interested candidates must complete the CTC application and return it to their District Education Office by the last Friday in April for the following September.

- District Career Education representatives assess the applications for suitability

- Applicants must attend a site visit with a Kwantlen CADD faculty member prior to the last Friday in April. The Kwantlen faculty member will report the visit to the appropriate School District to indicate that it has been completed.

- Applicants must have a signed Non-Standard Work Site Agreement

- Prerequisites for CTC Students:
  - Principles of Math 10 or Applications of Math 10 with C+
  - English 10
  - Commitment to complete the CTC program

Qualifying Assessment for CADD 1100

Kwantlen CADD Technologies recognizes the contribution of Secondary School Drafting 11 and 12 by granting credit based on a Qualifying Assessment.

Grade 12 students in the CTC School Districts who have Drafting 11 and/or 12 with 60% or more can write the Qualifying Assessment in mid-June at a school in their School District for no charge. If the student gets 60% or more on the Qualifying Assessment he or she will be granted 4 credits for CADD 1100 at Kwantlen with a MAS mark, a neutral mark that does not affect GPA.

Students must apply to the Kwantlen CADD Technologies program and have a Kwantlen student ID number before they can write the Qualifying Assessment in mid-June.

Students who do not pass the Qualifying Assessment can write it a second time at Kwantlen in mid-August for a fee of $35.00.

Students who do not pass the Qualifying Assessment the second time may not write it a third time, but still have the option of taking CADD 1100 at Kwantlen as a fee paying student.

SIGNATURES

_____
Kwantlen University College Board of Governors, Chair

_____
Kwantlen University College President

_____
Kwantlen University College Education Council, Chair

_____
Kwantlen University College Dean of Trades and Technology

_____
School District Board of Trustees, Chair

_____
School District Superintendent

Expectations

This is an academic University course, in which attendance is not normally recorded. However, Kwantlen CADD Programs are required to record and report attendance as per our agreement with the School Districts.

It is advantageous to students to attend all classes to benefit from the instructor guidance, especially if the student is not enrolled in Drafting 11 or 12 in Secondary School.

Class Schedule

Tuesday 4pm – 7pm
Thursday 4pm – 7pm
Students may stay until 10pm and come in on Fridays if they wish to get extra lab time. There will not be an Instructor available for these additional lab times. It is recommended that if students are staying late that they arrange to have another class member present.

Reporting of Grades

Grades will be reported to the School District the third week of November and the first week of December.

If a parent or guardian wishes to get information regarding the student's progress, the student must fill in a waiver/release form for the CADD Department.

Photo Waiver (attached) Photos might be used for printed/web-based informational or promotional material.

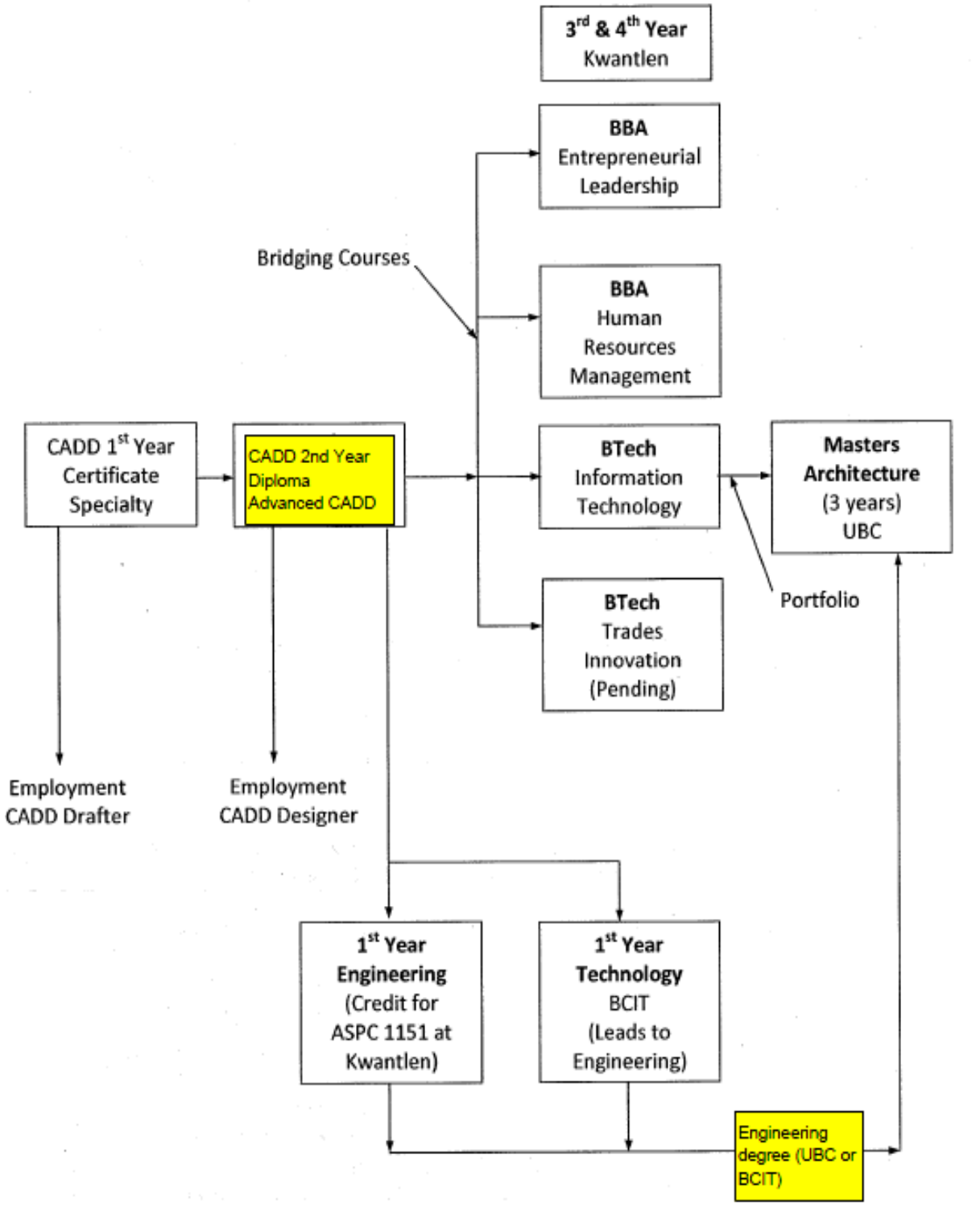
Textbooks CADD 1150 - $100 for CADLearning Online (one year subscription)
CADD 1110 – CMHC Wood Frame Construction ($25 Bookstore)

Software All Autodesk Software can be downloaded for a free one-year student license. (students.autodesk.com) Students must use their student Kwantlen email when setting up the account. It takes about 2 hours to download, or a DVD can be ordered which takes about 1 week to arrive.

Instructor: Daryl Massey daryl.massey@kpu.ca

Department Chair Christina Heinrick Christina.heinrick@kpu.ca
604-598-6158

Where does this CADD 1150 course lead to?



Kwantlen
POLYTECHNIC
UNIVERSITY

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(MINORS - 18 Years and Under)

For persons under the age of 19, the permission of a parent or legal guardian is required on this Photo Release and Testimonial Form

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Name of Participant (**Print**): _____ Tel #: _____

Name of Parent / Legal Guardian (**Print**): _____ Date: _____

Parent / Legal Guardian Address (**Print**): _____

Parent / Legal Guardian Tel #: _____

Parent / Legal Guardian's Signature: _____

Date: _____ Location: _____

Project: _____ Department: _____

Student Testimonial:

_____

_____

_____

Office Use:
Please code each person so our department is able to determine which name / testimonial belongs to which picture, i.e. put picture # on roll beside each person's name.

Please send all SIGNED waiver forms to the Marketing and Communications Department, Surrey Campus, by fax at 604-599-2064 or intercampus mail

ver.1 - 07/23/08

STUDENT HANDBOOK – CADD CTC PROGRAM

STUDENT HANDBOOK - CADD CTC PROGRAM

THIS HANDBOOK INCLUDES INFORMATION AND PROCEDURES FOR SECONDARY STUDENTS ATTENDING KWANTLEN POLYTECHNIC UNIVERSITY PROGRAMS AND IS INTENDED TO PROVIDE INSTRUCTORS AND STUDENTS A REFERENCE ON THE PROCESSES AND PROCEDURES REQUIRED FOR SECONDARY/POST SECONDARY PARTNERSHIPS.

THIS HANDBOOK WAS CREATED IN COLLABORATION BY THE TRADES AND TECHNOLOGY PARTNERSHIP (TTP) WHICH INCLUDES DELTA, SURREY, LANGLEY, RICHMOND, MAPLE RIDGE/PITT MEADOWS AND COQUITLAM SCHOOL DISTRICTS, AND KWANTLEN POLYTECHNIC UNIVERSITY.

GENERAL PROGRAM INFORMATION

Screening and Intake Process

A screening process identifies the most appropriate secondary school candidates for dual credit programs. The mandatory interview process may include a post secondary instructor.

Program Schedule

Secondary students are expected to follow the post-secondary schedule**.** Students must attend post secondary programs during school district closures, Spring Break and District Professional Days.

If a campus will be closed for an extended period of time, the post secondary must inform the school district.

Secondary School Graduation Credit

Successful completion of specialty programs gives students elective credits towards secondary school graduation. Post secondary marks must be reported to school district contacts to ensure reporting to the Ministry of Education.

Detailed information regarding the grades process is defined for each program offering.

Tuition and Related Fees

School districts pay the tuition costs for students who have been selected to participate in dual-credit programs. Students are expected to cover costs related to tools, textbooks, supplies and personal protective equipment/uniforms. Secondary students should not be charged for college medical insurance premiums.

Accommodations for Special Needs

Every effort is made to assist and accommodate students with identified learning, physical, language or medical disabilities. Student accommodations are provided based on assessment and consultation with appropriate post-secondary student services.

For more information, refer to www.kwantlen.ca/ssd.html and Policy C.37

Transportation

Students are responsible for their own transportation to and from post-secondary programs.

Field Trips

Post secondary instructors planning field trips should contact the school district representatives for information about school district procedures.

Completed Post Secondary field trip forms are required by Kwantlen for students under the age of 18 and a legal guardian signature is mandatory. It should be noted that a different form is required for students over the age of 18. Field trip waivers forms must be completed and signed by parent/guardian before any excursion is to take place as per Policy E.18b.

Withdrawal and Program Changes

A student may not be asked or allowed to withdraw or change programs without prior consultation with the School District contact. School districts must notify Kwantlen admissions and respective Instructors if a secondary student is to be withdrawn from a program.

Students withdrawing from a Kwantlen program may qualify for a compassionate withdraw – *Policy C.34.* Other withdraws may result in academic penalty which would affect CGPA (cumulative grade point average).

Convocation

Instructors are encouraged to promote students attending convocation and to ask students to apply. It is likely that the school districts will communicate with the parents in an effort to encourage attendance.

Policies & Procedures (Secondary vs Post Secondary)

An appropriate student orientation session at the start of a post secondary program is essential to support student success. Students will be informed of services and facilities to which they will have access, for example, recreational facilities, library, student union, computer labs, policies, etc.

Secondary students must also be informed about post secondary student expectations. An effective strategy is to use examples to describe all of the policies as well as the expected outcomes if a student persists in breaking policies. Kwantlen's policies can be found at www.kwantlen.ca/policies

- Attendance and performance - *Policy B.7*
  - arriving late, leaving early, extended breaks
  - absent for 3 consecutive days without notification
- Human rights – Policy G.2
  - zero tolerance for sexual harassment
  - racial discrimination – *Policy C.21*
  - threatening or intimidating behaviour (understanding the difference between intent and perception of those behaviours) *Policy C.41*
- Student Conduct – Policy C.21
  - work ethic
  - language
  - smoking
  - spitting
  - horse play and practical jokes
- Illegal or illicit acts
  - drugs and alcohol – *Policy F.1*
  - theft
  - cheating and plagiarism – *Policy C.8*
- Personal responsibility
- Complaints – *Policy C.6*
- Evaluation and Assessment – *Policy B.4 and C.20*

Student Privacy

The Freedom of Information and Protection of Privacy Act requires public institutions to provide individuals with the right to access and correct personal information about themselves and to prevent the unauthorized collection, use, or disclosure of personal information *(Policy E.20 and C.4).*

Communication with Parents

School Districts have an additional responsibility of care related to dealing with minors and their parents. It is not the responsibility of the post secondary instructor to communicate directly with anyone other than the student and school district.

Insurance

Registered Kwantlen students are protected by WCB coverage *(Policy E.18).*

Waivers and releases

Consent is required for the release or publication of information. Student and parent permission is required to share information between post secondary and school districts. Waiver of student information, including attendance and performance, is required to be signed for both the school district and Kwantlen when attending in a partnership post secondary programs. It is mandatory that parent/guardians sign the school district waiver.

Parents are informed that post-secondary instructors deal directly with students and are not required to communicate with parents. Instructors should refer any parental communication back to the School District. School District representatives will speak on behalf of parents of students in dual credit programs.

Media releases

Care must be taken when using photographs of students. A media release must be on file before photos can be published or posted on the Internet. For example, instructors may not be aware that it is illegal to take a photograph of a child in foster care.

Photo waiver release forms are required by the school district and Kwantlen for any student attending a partnership program. For students aged 18 or younger, it is mandatory that the photo release form is signed by the legal guardian of the student.

Signed Kwantlen photo release forms are to be forwarded to the Marketing and Communications Department.

ct.

APPENDIX F

Drafting 11 & 12 Qualifying Assessment (QA)

Memorandum to EdCo

Admissions Procedure for QA

College of Trades and Technologies
Drafting/CADD Technologies

Proposed Modification to Secondary School Partnership

as a result of the new
Drafting/CADD Diploma Program.

Prepared by Joanne Massey
January 18, 2008

Drafting/CADD Technologies

Proposed Modification to Secondary School Partnership

as a result of the new
Drafting/CADD Diploma Program.

History and Rationale:

The Kwantlen Drafting/CADD program has been participating in a successful partnership with Grade 11 and 12 students from the Surrey, Delta, Langley and Richmond school districts from 2003 until May 2007.

In that partnership, secondary students attended classes in the Kwantlen Drafting/CADD program on a part time (1/8) basis while taking Drafting 11 and/or 12 in secondary school. The time spent at Kwantlen augmented the secondary school drafting to prepare students to meet all the outcomes of the first (Core) semester in the Kwantlen certificate program.

Up until May 2007 the Kwantlen certificate program was a continuous intake career technical program. In that model, it was possible to grant advanced placement to students taking Drafting 11 and 12 in their secondary school while participating in the partnership program.

In September 2007, the Kwantlen program began its credit-based two-year diploma program. At that time the partnership was halted, as we were unable to grant partial credit to Drafting 11 and 12 students. Many secondary applicants were disappointed to see the cessation of this successful program, and we have been working with the school districts to establish a new model for the partnership.

This proposal recommends a way to recognize the contribution by secondary school drafting programs towards the Kwantlen Core semester.

Description of Modified Partnership

The Kwantlen Drafting/CADD program recommends that credit for CADD 1100 be granted to secondary school students with Drafting 11 and/or 12 based on a **qualifying assessment**.

- Qualifying assessment to be co-written by Kwantlen Drafting/CADD faculty and secondary school drafting instructors
- The qualifying assessment will be available on a Moodle site to which Kwantlen faculty, secondary school drafting instructors, and registered secondary school partnership students will have access (this has been approved in principle by IET)
- Secondary school drafting instructors will deliver the exam from their classrooms at a fixed date and time
- Secondary school partnership students will complete the other 3 Core courses on a part-time basis (one course per semester) during their grade 11 and 12 years
  (CADD 1110, CADD 1150, CADD 1160)

- Secondary school students who do not complete all the Core courses while in secondary school can complete the Core courses as fee paying students after secondary school graduation.

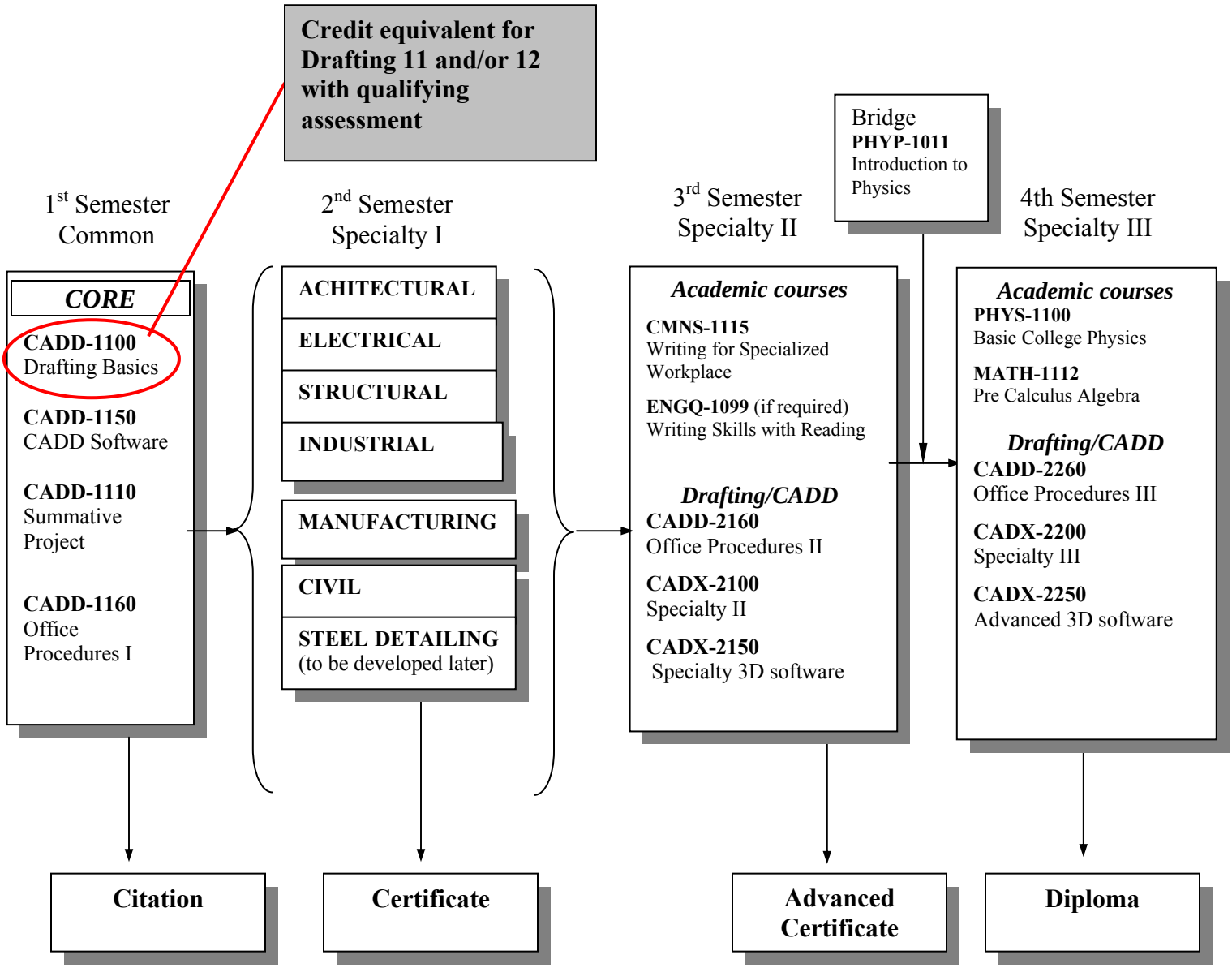
Comparison of Outcomes:

Kwantlen University College	Technology Education 11 and 12: Drafting and Design IRP (2001)
CADD 1100 – Drafting Fundamentals	**Drafting 12 IRP – Drafting Fundamentals**

• identify drafting media
• set up drawings
• utilize geometric construction
• use appropriate line types
• utilize freehand sketching
• prepare orthographic drawings
• draw auxiliary views
• develop geometric shapes and intersections
• draw pictorial drawings
• apply sections and conventions
• utilize details
• apply dimensions
• apply nomenclature
• ensure quality of finished drawings
• fill In title block information
• use measuring tools
• apply mechanical symbols
• apply welding and fabrication symbols
• prepare a mechanical assembly drawing
• use basic CADD commands
	• use appropriate drafting and design terminology to communicate effectively
	• select, present, and respond to drawings and design solutions in a variety of suitable visual formats and media
	• consistently apply drawing standards and conventions, including those related to:
	  o layout and set-up of drawings
	  o line types
	  o dimensioning styles
	  o nomenclature
	• create complex drawings including sketches, orthographic projections, pictorials, working drawings, and development drawings
	• prepare drawing details, including auxiliary views, sections, threads and fasteners, tolerances, and surface finishes
	• identify and develop the components of working drawings including bill of materials and schedules
	
	Drafting 11 IRP – Drafting Fundamentals
	
	• define and make appropriate use of drafting and design terminology
	• identify types, sizes, and applications of drawing media
	• apply drawing standards and conventions related to:
	  o layout and set-up of drawings
	  o line types
	  o nomenclature
	• utilize geometric construction in creating drawings and images
	• prepare basic sketches, orthographic projections, pictorials, and working drawings
	• present drawings and design solutions in a variety of formats

Kwantlen Drafting/CADD Diploma Program:

The following illustrates the structure of the program:



Implementation date:

April 2008
Secondary school applicants must have their completed applications for the partnership program submitted to the school districts by the end of April 2009

June 2008
Secondary school drafting students will write the qualifying assessment

Students writing the qualifying assessment for CADD 1100 in June 2008 would be:

- Grade 12 graduates, who would then take the other three Core courses as fee-paying students
- Grade 11 students, who would be able to take 2 of the Core courses during their grade 12 year as CTC students

If students do not pass the qualifying assessment:

Passing the qualifying assessment is not a condition of a student entering into the CTC partnership.

If a student does not pass the qualifying assessment for CADD 1100 it means that the student must pay for CADD 1100 himself and take the course in the next Core intake.

Often a student will not write the qualifying assessment until he or she has taken one or two of the other Kwantlen Drafting Core courses. This will increase his chances of passing the qualifying assessment due to additional practice with drafting fundamentals in CADD 1110 (Summative Project) and CADD 1150 (CADD Software)

CADD 1100 qualifying assessment should be available to all secondary schools

It is recommended that the opportunity to write a qualifying assessment for credit for CADD 1100 by secondary school students with Drafting 11 and/or 12 should be extended to past secondary students, as well as secondary students from other school districts. This is unprecedented in Drafting/CADD programs in BC and would give our program a competitive advantage.

April 2013 (Prepared by Christina Heinrick and Nadia Henwood)

Admissions process for new Drafting applicants with eligibility to receive advanced standing in CADD 1100

Notes:

- Students must be current qualified applicants for the CADD program
- These applicants will not be given any admission priority based on advanced standing received
- This is only applicable for BC high school curriculum
- The internal process used will follow the PLA process (but won't be "called" PLA).
- External communication with potential students in promotional materials will refer to the process as "advanced standing" for CADD 1100 (not PLA).

Process for applicants who are currently enrolled in high school

1 Student applies to Kwantlen's Drafting Program and pays applicable application fee; follows applicable application timelines.

a. Student provides a high school transcript, or
b. Admissions Assistants will check if it has been received via the Ministry Tape

To ensure we capture as many eligible students as possible, Admissions will review all Drafting applicants to see if they have Drafting 11 and/or 12 with a minimum grade of 60%. If the applicant qualifies, Admissions provide the list to the CADD Department Chair in April. The CADD Department Chair will contact the students with the option to write the assessment test to receive advanced standing for CADD 1100 (to receive credit, but no grade).

2 The student can opt to write the assessment exam **[for free]** in their high school, on a secured Kwantlen Moodle site, under the supervision of their high school drafting instructor **in June**.

If the student is unsuccessful in passing the assessment, they have the option of sitting the test one more time, **[for a fee of $25]**, but they must wait to write the test until August, at which time they can come onsite to the Cloverdale Campus and re-write it under the supervision of a delegate from Drafting .

a. If the student's first or second assessment is successful, the student will be given credit for CADD 1100 upon conditional high school graduation and the appropriate drafting marks.

i. CADD Department Chair will fill out a PLA form and indicate on the form:
- No charge for student
- No payment for faculty

ii. The PLA forms will be sent to Manager of Admissions & Transfer Credit
iii. The Transfer Credit department will code the student's record as **MAS** (mastery) for CADD 1100.
This is GPA neutral, as no grade is assigned.
The student will receive 4.0 credits
iv. The Transfer Credit Department will code the student's transcript as **PLA**

b. If the student's first and second assessment is unsuccessful, they must register for CADD 1100.

At the discretion of the CADD Department Chair, additional assessment dates may be available.

Process for current applicants who are NOT currently enrolled in high school

1. Student applies to Kwantlen' Drafting program and pays applicable application fee; follows applicable application timelines.

    a. Student provides a high school transcript, or
    b. Admissions Assistants will check if it has been received via the Ministry Tape

    To ensure we capture as many eligible students as possible, Admissions will review all Drafting applicants to see if they have Drafting 11 and/or 12 with a minimum grade of 60%. If the applicant qualifies, Admissions provide the list to the CADD Department Chair in April. The CADD Department Chair will contact the students with the option to write the assessment test to receive advanced standing for CADD 1100 (to receive credit, but no grade).
    At the discretion of the CADD Department Chair, additional assessment dates may be available.

2. The student can opt to write the assessment exam **in June** for a fee of $25, onsite at the Cloverdale Campus under the supervision of a delegate from Drafting.

    If the student is unsuccessful in passing the assessment, they have the option of sitting the test one more time, **for a second fee of $25**, but they must wait to write the test until **August**, at which time they can once again come onsite to the Cloverdale Campus and re-write it under the supervision of a delegate from Drafting.

    a. If the student's first or second assessment is successful, the student will be given credit for CADD 1100 upon conditional high school graduation and the appropriate drafting marks.

        i. CADD Department Chair will fill out a PLA form and indicate on the form:
            - No charge for student
            - No payment for faculty

        ii. The PLA forms will be sent to Manager of Admissions & Transfer Credit

        i. The Transfer Credit department will code the student's record as **MAS** (mastery) for CADD 1100.
        This is GPA neutral, as no grade is assigned.
        The student will receive 4.0 credits

        ii. The Transfer Credit Department will code the student's transcript as **PLA**

    b. If the student's first and second assessment is unsuccessful, they must register for CADD 1100.

    At the discretion of the CADD Department Chair, additional assessment dates may be available.

APPENDIX G

BCCAT Articulation: Block Transfer Agreements & KPU Course Mapping

NOTES
KPU Course Mapping sent to KPU Records to facilitate the Block Transfer Agreements

CADD TECHNOLOGIES

Transfer Agreements Articulated Through BCCAT

Prepared by

Joanne Massey - CADD Technologies Dept. Chair

For Presentation to SSCC
May 5 2010

Transfer Agreements Articulated Through BCCAT

Description:

Through a BCCAT funded initiative (CADD Transfer Innovations) conducted during 2009, the Kwantlen CADD Technologies program entered into several articulation agreements which now require approval from Senate.

Once approved at Senate, these agreements will be ratified and re-signed at the BC Drafting Technologies Articulation Committee (BCDTAC) meeting at Camosun College on June 24 2010.

AGREEMENTS

Transfer Grids

Architectural Transfer Grid
Structural Transfer Grid

Block Transfer Agreements

Kwantlen - Camosusn	1st Semester
Kwantlen - NIC	1st and 2nd Semesters
Kwantlen - VCC	1st and 2nd Semesters
Kwantlen - UFV	1st and 2nd Semesters
Kwantlen - BCIT	1st and 2nd Semesters

Architectural CADD – Transfer Grid (as determined at the June 29 2009 BCDTAC Meeting)

TOPIC	TRU	NIC	BCIT	UCFV	VCC	VCC	Kwantlen
	Engineering Design	**Mech / Arch / Civil**	**Architectural Technology**	**Architectural CADD**	**Architectural CADD**	**Arch / Civil & Structural**	**Architectural CADD**
CADD	**ARET 111 & 210** CADD & Advanced CADD	**DRT 181** Computer Assited Drafting - Autocad	**BLDG 1405** Architectural CAD 1	**ADT 1** Drafting Fundamentals and CAD	**DRFT 1101 & 1102** Basic Drafting 1 & 2	**DRFT 1101 & 1102** Basic Drafting 1 & 2	**CADD 1150** Computer Aided Design & Drafting
Introduction to Architecture	**ARET 112** Introduction to Architecture	**DRT 110 & 140** Architectural Draft/Materials		**ADT 3** Building Construction 1	**DRFT 1226** Construction Drawing Reading	**DRFT 1226** Construction Drawing Reading	**CADD 1110** Summative Project (House)
Drafting/Graphics	**ARET 110** Graphical Commnunications	**DRT 100** Introduction to Drafting					**CADD 1100** Drafting Fundamentals
Office Software		**DRT 185** Office Software for CADD Office					**CADD 1160** Office Software and Procedures
Building Information Modeling (BIM)/ 3D		**DRT 111** 3D Building Information Modeling			**DRFT 1252** 3D CAD		**CADA 1250** Building Information Model Software
Single Family Residential				**ADT 5** Final Architectural Project	**DRFT 1250** Single Family Residentail - Bldg Layout		**CADA 1210** Single Family Residential
Architectural Concepts					**DRFT 1250 & 1251** Single Family Residentiall - Bldg Layout	**DRFT 1320** Architectural Concepts	**CADA 1200** Architectural Fundamentals
Multi-Family Residential					**DRFT 1251** Mulit-Family Residential - Bldg Layout		**CADA 2100** Multi-Family Residential
Commercial					**DRFT 1354** Commercial Building		**CADA 1220** Commercial Building
Advanced Single Family Residential				**ADT 4** Building Construction 2			**CADA 1200 & 1210** Arch Fundamentals & Single Family Residential
Civil and Surveying	**ARET 140 & 141** Civil Subdivision & Surveying	**DRT 100 & 120** Topographic Civil Drafting & Surveying		**ADT 7** Civil Drafting and Surveying			

I do hereby agree with the course equivalencies as indicated in the Architectural Transfer Grid. Our program will honor these course equivalencies when receiving students from other institutions, and grant the number of credits equal to our course.

Institution Name Kwantlen Polytechnic University

Program Name CADD Technologies

Print Name Joanne Massey

Signed  Date Dec. 18 2009

Structural CADD – Transfer Grid (as determined at the June 29 2009 BCDTAC Meeting)

TOPIC	NIC	BCIT	VCC	VCC	Kwantlen
	Mech / Arch / Civil	**Structural CADD**	**Arch / Civil & Structural**	**Steel Detailing**	**Architectural CADD**
Site Work	**DRT 120** Topographic & Civil Detailing		**DRFT 1210** Industrial Site Layout		
Civil 3D Modeling	**DRT 121** Designing with Civil 3D		**DRFT 1211** Alignment Detailing		**CADD 2110** Site Work with 3D Software
Concrete			**DRFT 1322** Foundation & Ground Floor Systems		**CADS 1200** Structural Fundamentals and Concrete
Steel			**DRFT 1321** Steel Structures		**CADS 1210** Structural Steel
Steel Detailing		**ASCT 1140** Steel Detailing		**DRFT 1350** Detailing Using Geometry	

I do hereby agree with the course equivalencies as indicated in the Structural Transfer Grid. Our program will honor these course equivalencies when receiving students from other institutions, and grant the number of credits equal to our course.

Institution Name Kwantlen Polytechnic University

Program Name CADD Technologies

Print Name Joanne Massey

Signature:  Date: Dec. 18 2009

Block Transfer Agreement

CADD Technologies Diploma Program
Kwantlen Polytechnic University (Kwantlen)

And

Engineering Graphics Technician Certificate Program
Camosun College

Description

Students graduating from the Engineering Graphics Technician Certificate Program at Camosun with a **Certificate in Engineering Graphics Technician** will be granted 15 transfer credits towards the **Certificate in CADD Technologies** at Kwantlen, and direct entrance into the second semester of the CADD Diploma Program given the following conditions:

a) Transfer students must meet Kwantlen CADD entrance requirements
(Principles of Math 11 C+ and English 12 C)

b) Transfer students must have a minimum grade of 'C' in all CADD-related (Certificate) courses taken at Camosun.

Signatures:

_____ Date: December 15 2009

Joanne Massey – Dept Chair: CADD Technologies Diploma
Kwantlen Polytechnic University

_____ Date: _____

Ross Lyle – Dept Chair: Mechanical Engineering Technology
Camosun College

Block Transfer Agreement

CADD Technologies Diploma Program
Kwantlen Polytechnic University

And

Drafting Certificate Program
North Island College

Description

Students graduating from the Drafting Program at North Island College with a **Certificate in Drafting** will be granted 30 transfer credits towards the **Diploma in CADD Technologies: Advanced CADD** at Kwantlen, and direct entrance into the third semester of the CADD Diploma Program given the following conditions:

A) To register in CADD 2100 and CADD 2200 level courses

a) Transfer students must meet Kwantlen CADD entrance requirements (Principles of Math 11 C+ and English 12 C)

b) Transfer students must have a minimum of 36 hours training in 3D Software (such as: Revit, Inventor, Civil 3D, SolidWorks, Tekla etc) to be confirmed by NIC Drafting Instructor

c) Transfer students must have a minimum grade of 'C' in all Drafting-related (Certificate) courses taken at North Island College

B) To register in Kwantlen General Academic Courses

a) MATH 1112
Transfer students must meet MATH 1112 prerequisite as listed in the Kwantlen Calendar. Upgrading can be obtained at Kwantlen in the MATQ 1099 or ABEM 0011 course.

b) ENGL 1100
Transfer students must meet ENGL 1100 prerequisite as listed in the Kwantlen Calendar. Upgrading can be obtained at Kwantlen in the ENGQ 1099 or ABEE 0091 course.

NOTE: 2nd Year CADD Courses can be taken before the MATH 1112 and ENGL 1100 courses.

Signatures:

Joanne Massey – Dept Chair: CADD Technologies Diploma
Kwantlen Polytechnic University

Date: March 28 2010

Michael Whitmore – Instructor: Drafting Certificate Program
North Island College

Date: March 30/2010

Block Transfer Agreement

CADD Technologies Diploma Program
Kwantlen Polytechnic University (Kwantlen)

And

Drafting Program
Vancouver Community College (VCC)

Description

Students graduating from the Drafting Program at VCC with a **Certificate in Drafting** will be granted 30 transfer credits towards the **Diploma in CADD Technologies: Advanced CADD** at Kwantlen, and direct entrance into the third semester of the CADD Diploma Program given the following conditions:

A) To register in CADD 2100 and CADD 2200 level courses

a) Transfer students must meet Kwantlen CADD entrance requirements (Principles of Math 11 C+ and English 12 C)

b) Transfer students must have a minimum of 36 hours training in 3D Software (such as: Revit, Inventor, Civil 3D, SolidWorks, Tekla etc) to be confirmed by VCC Drafting Instructor

c) Transfer students must have a minimum grade of 'C' in all Drafting-related (Certificate) courses taken at VCC

B) To register in Kwantlen General Academic Courses

a) MATH 1112
Transfer students must meet MATH 1112 prerequisite as listed in the Kwantlen Calendar. Upgrading can be obtained at Kwantlen in the MATQ 1099 or ABEM 0011 course.

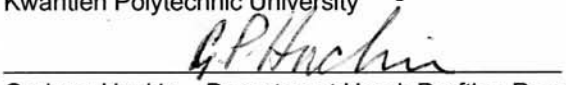
b) ENGL 1100
Transfer students must meet ENGL 1100 prerequisite as listed in the Kwantlen Calendar. Upgrading can be obtained at Kwantlen in the ENGQ 1099 or ABEE 0091 course.

NOTE: 2nd Year CADD Courses can be taken before the MATH 1112 and ENGL 1100 courses.

Signatures:

Joanne Massey – Dept Chair: CADD Technologies Diploma
Kwantlen Polytechnic University

Date: March 28 2010



Graham Huckin – Department Head: Drafting Program
Vancouver Community College

Date: 1 APRIL 2010

Block Transfer Agreement

CADD Technologies Diploma Program
Kwantlen Polytechnic University (Kwantlen)

And

Architectural Drafting Technician Program
University of the Fraser Valley (UFV)

Description

Students graduating from the Architectural Drafting Technician Program at UFV with a **Certificate in Drafting** will be granted 30 transfer credits towards the **Diploma in CADD Technologies: Advanced CADD** at Kwantlen, and direct entrance into the third semester of the CADD Diploma Program given the following conditions:

A) To register in CADD 2100 and CADD 2200 level courses

a) Transfer students must meet Kwantlen CADD entrance requirements (Principles of Math 11 C+ and English 12 C)

b) Transfer students must have a minimum of 36 hours training in 3D Software ★, which may be taken concurrently with semester 3 (such as: Revit, Inventor, Civil 3D, SolidWorks, Tekla etc) to be confirmed by UFV Drafting Instructor
★ or AutoCAD Architecture.

c) Transfer students must have a minimum grade of 'C' in all Drafting related (Certificate) courses taken at UFV

B) To register in Kwantlen General Academic Courses

a) MATH 1112
Transfer students must meet MATH 1112 prerequisite as listed in the Kwantlen Calendar. Upgrading can be obtained at Kwantlen in the MATQ 1099 or ABEM 0011 course, or UFV equivalent ★

b) ENGL 1100
Transfer students must meet ENGL 1100 prerequisite as listed in the Kwantlen Calendar. Upgrading can be obtained at Kwantlen in the ENGQ 1099 or ABEE 0091 course, or UFV equivalent ★

NOTE: 2nd Year CADD Courses can be taken before the MATH 1112 and ENGL 1100 courses.

Signatures:

JM

Date: March 28 2010

Joanne Massey – Dept Chair: CADD Technologies Diploma
Kwantlen Polytechnic University

T. Thomson

Date: April 7, 2010

Tricia Thomson – Instructor: Architectural Drafting Technician Program
University of the Fraser Valley

Block Transfer Agreement

CADD Technologies Diploma Program
Kwantlen Polytechnic University (Kwantlen)

And

CADD Graphics Technician Program
BCIT

Description

Students graduating from the CADD Graphics Technician Program at BCIT with a **Certificate in CADD Graphics Technician** will be granted 30 transfer credits towards the **Diploma in CADD Technologies: Advanced CADD** at Kwantlen, and direct entrance into the third semester of the CADD Diploma Program given the following conditions:

A) To register in CADD 2100 and CADD 2200 level courses

a) Transfer students must meet Kwantlen CADD entrance requirements
(Principles of Math 11 C+ and English 12 C)

b) Transfer students must have a minimum of 36 hours training in 3D Software
(such as: Revit, Inventor, Civil 3D, SolidWorks, Tekla etc) to be confirmed by BCIT CADD Instructor

c) Transfer students must have a minimum grade of 'C' in all CADD-related (Certificate) courses taken at BCIT

B) To register in Kwantlen General Academic Courses

a) MATH 1112
Transfer students must meet MATH 1112 prerequisite as listed in the Kwantlen Calendar. Upgrading can be obtained at Kwantlen in the MATQ 1099 or ABEM 0011 course.

b) ENGL 1100
Transfer students must meet ENGL 1100 prerequisite as listed in the Kwantlen Calendar. Upgrading can be obtained at Kwantlen in the ENGQ 1099 or ABEE 0091 course.

NOTE: 2nd Year CADD Courses can be taken before the MATH 1112 and ENGL 1100 courses.

Signatures:

_____ Date: _____
Joanne Massey – Dept Chair: CADD Technologies Diploma
Kwantlen Polytechnic University

_____ Date: _____
Anna Trajkovic – Chief Instructor: CADD Graphics Technician Program
BCIT

CADD TECHNOLOGIES
Diploma - Advanced CADD Option

Kwantlen POLYTECHNIC UNIVERSITY

Bridge to 2nd Year (if required)

ENGQ 1099 or ABEE 0091 (for students who do not have English 12 'B')

MATQ 1099 or ABEM 0011 (for students who do not have Principles of Math 11 with B-)

PHYQ 1098 or ABEP 0011 (for students who do not have Physics 11)

1st Year

2nd Year

Semester 1 **Citation**	Semester 2 **Certificate**	Semester 3 **Advanced Certificate**	Semester 4 **Diploma**

ARCHITECTURAL

CADA-1250
BIM Software Arch.
CADA-1200
Arch. Fundamentals
CADA-1210
Single Family Resident
CADA-1220
Commercial

CORE

***CADD 1100**
Drafting Fundamentals
CADD 1110
Summative Project (Architectural)
CADD 1150
Autocad
CADD 1160
Office Procedures

STRUCTURAL

CADS-1250
BIM Software Struct.
CADS-1200
Concrete
CADS-1210
Steel
CADS-1220
Wood

MANUFACTURING

CADM-1250
3D Parametric Model
CADM-1200
Manuf.. Fundamentals
CADM-1210
Component Assembly
CADM-1220
Integrated Design

INDUSTRIAL

CADI-1250
3D Parametric Model
CADI-1200
Indust. Fundamentals
CADI-1210
Materials Handling
CADI-1220
Process Piping

September

Semester 3
18 credits

MATH 1112 (3 cr)
Pre Calculus Algebra

CADD-2160 (4 cr)
Professional Practice

***CADD 2100** (4 cr)
3D Presentation Graphics

CADD 2110 (4 cr)
Surveying and Site Work

BUSI 1210 (3 cr)

January

Semester 4
15 credits

ENGL 1100 (3 cr)
Writing, Reading and Thinking: An Intro.

PHYS 1100 (4 cr)
Basic College Physics

CADD-2210 (4 cr)
Document Control and Web Portfolio

CADD-2250 (4 cr)
CADD Customization and Network

CADD courses are evenings
4 – 10 pm Cloverdale Campus

All other 2nd year courses are taken through General Studies

*CADD 2160 - Existing

CADD TECHNOLOGIES Diploma - Advanced CADD Option
Block Transfer from other Institutions with CADD/Drafting programs
Course Credit Mapping

Aug 20 2010

VCC Drafting Certificate Architectural	Kwantlen Course	Credits	Comments
Semester 1 CADD Core	CADD 1100 CADD 1110 CADD 1150 CADD 1160*	4 4 4 3	*This course requires a minimum grade of C in order to enter into 3rd Semester (2nd Year)
	Core Credit Total	**15**	
Semester 2 Specialty - Architectural	CADA 1200 CADA 1210 CADA 1220 CADA 1250*	3 4 4 4	
	Specialty Credit Total	**15**	

VCC Drafting Certificate Architectural/Civil/Structural	Kwantlen Course	Credits	Comments
Semester 1 CADD Core	CADD 1100 CADD 1110 CADD 1150 CADD 1160*	4 4 4 3	*This course requires a minimum grade of C in order to enter into 3rd Semester (2nd Year)
	Core Credit Total	**15**	
Semester 2 Specialty - Structural	CADS 1200 CADS 1210 CADS 1220 CADS 1250*	4 4 4 3	
	Specialty Credit Total	**15**	
Semester 3 CADD 2nd Year	CADD 2110	4	The Civil content in the VCC diploma should be granted credit for CADD 2110

VCC Drafting Certificate Steel Detailing	Kwantlen Course	Credits	Comments
Semester 1 CADD Core	CADD 1100 CADD 1110 CADD 1150 CADD 1160*	4 4 4 3	*This course requires a minimum grade of C in order to enter into 3rd Semester (2nd Year)
	Core Credit Total	**15**	
Semester 2 Specialty - Structural	CADS 12XX CADS 1210 CADS 12XX CADS 1250*	4 4 4 3	
	Specialty Credit Total	**15**	

UFV Drafting Certificate Architectural	Kwantlen Course	Credits	Comments
Semester 1 CADD Core	CADD 1100 CADD 1110 CADD 1150 CADD 1160*	4 4 4 3	*This course requires a minimum grade of C in order to enter into 3rd Semester (2nd Year) UFV students need CADA 1250 with C or 36 hours of 3D software training to get into CADD 2100. If they do not do CADA 1250 we will get a pre-requisite waiver for CADA 1250 once they have completed 36 hours of 3D software training. (this can be done through our Professional studies PCAD courses)
	Core Credit Total	**15**	
Semester 2 Specialty - Architectural	CADA 1200 CADA 1210 CADA 1220 CADA 12XX	3 4 4 4	
	Specialty Credit Total	**15**	

BCIT CADD Graphics Certificate Architectural	Kwantlen Course	Credits	Comments
Semester 1 CADD Core	CADD 1100 CADD 1110 CADD 1150 CADD 1160*	4 4 4 3	*This course requires a minimum grade of C in order to enter into 3rd Semester (2nd Year)
	Core Credit Total	**15**	
Semester 2 Specialty - Architectural	CADA 1200 CADA 1210 CADA 1220 CADA 1250*	3 4 4 4	

BCIT CADD Graphics Certificate Structural	Kwantlen Course	Credits	Comments
Semester 1 CADD Core	CADD 1100 CADD 1110 CADD 1150 CADD 1160*	4 4 4 3	*This course requires a minimum grade of C in order to enter into 3rd Semester (2nd Year)
	Core Credit Total	**15**	
Semester 2 Specialty - Structural	CADS 1200 CADS 1210 CADS 1220 CADS 1250*	4 4 4 3	

NIC Drafting Certificate	Kwantlen Course	Credits	Comments
Semester 1 CADD Core	CADD 1100 CADD 1110 CADD 1150 CADD 1160*	4 4 4 3	*This course requires a minimum grade of C in order to enter into 3rd Semester (2nd Year)
	Core Credit Total	**15**	
Semester 2 Specialty - Architectural	CADA 1200 CADA 1210 CADA 1220 CADA 1250*	3 4 4 4	
	Specialty Credit Total	**15**	
Semester 3 CADD 2nd Year	CADD 2110	4	The Civil content in the NIC diploma should be granted credit for CADD 2110

APPENDIX H

BCCAT – CADD Transfer Innovations Project

NOTES

Joanne Massey from the KPU CADD Program was seconded in 2010 by BCCAT to complete this project for all CADD-related programs in BC.

CADD Transfer Innovations Project

FINAL REPORT

Prepared By: Joanne Massey (Kwantlen Polytechnic University)
Project Coordinator
February 2010

For the
BC Drafting Technologies Articulation Committee (BCDTAC)

TABLE OF CONTENTS

1. Opening Remarks

The BC Drafting Technologies Articulation Committee (BCDTAC) has been meeting at least once per year consecutively since 1992. The main focus of the annual articulation meetings has been to discuss articulation and transfer among programs, and yet it has been difficult to define a method to tabulate all the range of courses, teaching methods, and credits.

The CADD Transfer Innovations Project has advanced the formal articulation and transfer credit among CADD-related programs in BC. In some cases, complete transfer grids were completed and signed by all relevant parties, but in a few cases there are still outstanding issues to work out. It is anticipated that all outstanding issues can be addressed and resolved at the June 2010 BCDTAC meeting in Victoria BC.

After an analysis of all the institutions in BC offering CADD related programs, it was determined that the most effective Transfer Grids would include programs in the following areas:

- Architectural
- Civil
- Mechanical
- Structural

Relevant CADD related programs were identified at the following BC institutions:

- BCIT: BC Institute of Technology
- Camosun: Camosun College
- UFV: University of the Fraser Valley
- Kwantlen: Kwantlen Polytechnic University
- NIC: North Island College
- OC: Okanagan College
- TRU: Thompson Rivers University
- VCC: Vancouver Community College

The BCIT Civil Technology program asked not to be included in the project because they are going through accreditation with the Canadian Engineering Accreditation Board (CEAB). Once they received their accreditation, they believe they will be in a better position to receive transfer students.

Representatives from Okanagan College's Civil program did not attend BCDTAC meetings where the Transfer Grids were discussed. Given the lack of BCIT's and Okanagan College's involvement, there is no Civil Technology transfer grid since the only program is Camosun's Civil Technology. It is hoped that this transfer grid can be developed at the June 2010 BCDTAC meeting.

The BCIT Mechanical Technology program is going through a similar accreditation process, and that while they indicated they could not participate in any block transfer agreements, they did participate in the Transfer Grids project which included BCIT, Camosun and Okanagan College. A lot of work was done among these three Mechanical programs to find similarity and grant credit wherever possible, but there is still some clarification required on the Mechanical Transfer Grid, which will be addressed at the June 2010 BCDTAC meeting.

Note:
The Project Committee for the CADD Transfer Innovations Project had a member change due to the fact that Walter Prescott from TRU was unable to attend the June 2009 BCDTAC meeting.

For the duration of the project, the Project Committee consisted of:

1. Joanne Massey (Project Coordinator) - Kwantlen
2. Ross Lyle - Camosun
3. Larry Gritzmaker - UFV

2) Transfer Grids

2.1) Transfer patterns among CADD-related programs, and history of the activities and agreements developed as part of BCDTAC

In B.C. there are several types of CADD (Computer Aided Design & Drafting) related programs:

- One year certificate programs
- Two year diploma programs
- Two year technology programs (accredited with CTAB*)
- Three year technology programs (accredited with CTAB*)

*Canadian Technologies Accreditation Board

Transfer Patterns:

a) Students with a certificate pursue a second certificate in a different specialty area of CADD.

Specialty areas include:
Architectural, Civil, Structural, Electrical, Mechanical and Steel Detailing

When the project started, programs that offered different specialties would often accept the students' first, or Core semester and allow them directly into the second, or specialty semester. Historically this was done on a one-to-one basis with review of each application, because there was no formal articulation between programs. As a result of the project, all CADD one-year certificate programs will formally grant credit to the Core, or first semester of other certificate programs.

b) Students with a certificate in a particular specialty area pursue a diploma in the same specialty area at a different institution that offers second year courses.

When the project started, credit could be granted for first year specialty courses of like nature for transfer into the second year of a diploma program. This was usually done on a one-to-one basis with review of each application, because there was no formal articulation between programs. As a result of the project, students can transfer from completion of a one-year CADD certificate program into the second year of another program with a clear indication of which courses will transfer.

c) Students with a certificate or diploma seek further education and certification by pursuing a technology diploma.

When the project started, only one technology program in B.C. recognized credits earned in a CADD certificate or diploma program, and that was a verbal agreement among member institutions of BCDTAC. As a result of the project, two more institutions offering two-year programs have joined BCDTAC and will now recognize credits earned in a one-year CADD certificate program.

2.2) How the Transfer Grids will improve transfer for CADD students, and how it will benefit both sending and receiving institutions

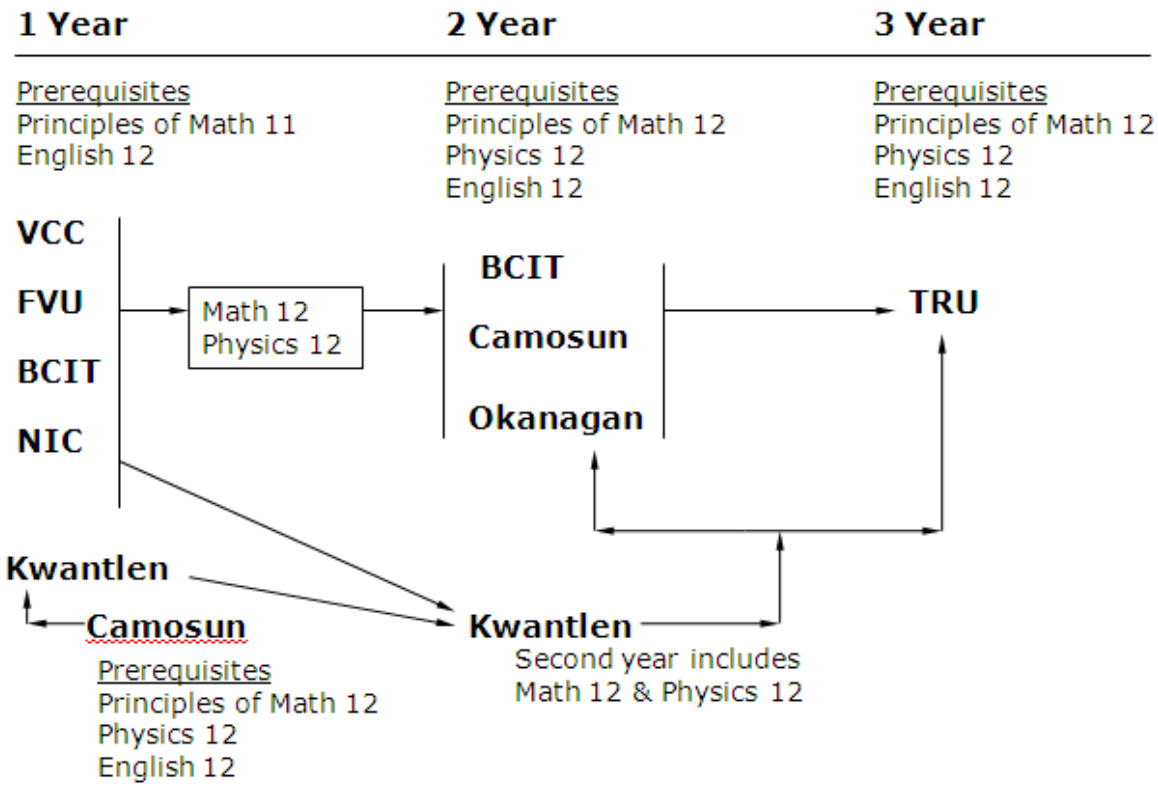
This project has formally articulated the existing agreements as detailed above, and added other technology programs (BCIT and Okanagan College) that will accept credits from CADD-related certificate and diploma programs.

The benefits to both sending and receiving institutions are:

- Increased awareness and recognition of similarities among CADD related programs in B.C. including:
    - BCIT: BC Institute of Technology
    - Camosun: Camosun College
    - UFV: University of the Fraser Valley
    - Kwantlen: Kwantlen Polytechnic University
    - NIC: North Island College
    - OC: Okanagan College
    - TRU: Thompson Rivers University
    - VCC: Vancouver Community College

- The Transfer Grids enable all the institutions listed above to be both sending and receiving institutions

- Descriptive Pathways Diagram based on the Transfer Grids



- Increased understanding and awareness among CADD related programs in B.C. as to how students can advance their education at another institution

- Increased understanding and awareness among CADD students in B.C. as to how they can advance their education at another institution

- Recognition of, and granting of credits earned in another CADD related program, and an understanding as to how this process is carried out

- Enhanced and expedient transferability between programs

2.3) Transfer Grids and Evidence of Acceptance

2.3 (a) Transfer Grids detailing CADD-related courses in participating institutions

See Appendix A

2.3 (b) Evidence of formal acceptance by participating institutions (as relevant to each initiation) that the information provided is correct

See Appendix A

2.4) Updating the Transfer Grids

The BCDTAC has been meeting at least once per year for 18 years consecutively. Articulation and Transfer Credit is always the focus of the meeting. Until this BCCAT funded project we were unable to develop a procedure to ensure the maximum transfer possibilities for students in a manner that was easy to support and facilitate.

This project has given us the structure to grant transfer credit to CADD students wherever possible. The review and updating of the Transfer Grids will be the first item on the annual BCDTAC meeting agenda, with the objective that the grids will be fully updated by the end of the meeting. All members are committed to this process and the Transfer Grids will be appropriately maintained.

3) Block Transfer

3.1) Brief analysis of transfer patterns

See Item (2.1) under Transfer Grids for historical transfer patterns in CADD-related programs.

During the process of the transfer project, two Block Transfer agreements were established:

1) Camosun Certificate graduates are granted the first semester credits into the NIC Drafting Program

2) Camosun Certificate graduates are granted the first semester credits into the Kwantlen CADD Technologies Program

It is anticipated that as these Block Transfer agreements develop and are applied, other intuitions will initiate such agreements.

Further, the Kwantlen Technologies program has recently developed a 2nd Year option that is general, and not specific to any Specialty Area. It is their intent to create Block Transfer agreements with all CADD/Drafting Certificate programs directly into their second year. These additional Block Transfer agreements will be developed at the June 2010 Articulation Meeting.

3.2) How Block Transfer will improve transfer for CADD students and will benefit both sending and receiving institutions

See Item (2.2) under 2. Transfer Grids.

3.3) Block Transfer agreements and Evidence of Acceptance

3.3 (a) A Block Transfer agreement that details:

- Each participating institution
- The participating CADD –related programs at sending institutions
- The participating CADD –related programs at receiving institutions
- How many credits students receive upon transfer. Any other features such as preferential or guarantee admission
- Any conditions before entry, such as course grades or GPA, specific required courses

3.3 (b) Evidence of formal agreement by participating institutions (as appropriate to each initiation)

See Appendix B

3.4) Outline of a process to be used to ensure the CADD Block Transfer Agreement will be reviewed on a regular basis, and updated as appropriate.

The BCDTAC has been meeting at least once per year for 18 years consecutively. Articulation and Transfer Credit is always the focus of the meeting. Until this BCCAT funded project we were unable to develop a procedure to ensure the maximum transfer possibilities for students in a manner that was easy to support and facilitate.

This project has given us the structure to grant transfer credit to CADD students wherever possible. The review and updating of the Block Transfer Agreements will be the first item on the annual BCDTAC meeting agenda, with the objective that the agreements will be fully updated by the end of the meeting.

All members are committed to this process and the Block Transfer Agreements will be appropriately maintained. It is expected that additional Block Transfer Agreements will be created by other institutions as they become familiar with the process by observing the agreements that were developed as part of this project.

Appendix A – **Signed Transfer Grids**

CADD Transfer Innovations Project

Signed Architectural Transfer Grid

UFV – Larry Gritzmaker

NIC – Michael Whitmore

VCC – Graham Huckin

BCIT – Julia Hein

TRU – John Dumesnil

Kwantlen – Joanne Massey

Signed Structural Transfer Grid

NIC – Michael Whitmore

VCC – Graham Huckin

BCIT – Anna Tracovic

Kwantlen – Joanne Massey

Mechanical Transfer Grid (not signed)

BCIT – Paul Morrison

Okanagan – Quincy DeWitt

Camosun – Ross Lyle

Architectural CADD – Transfer Grid (as determined at the June 29 2009 BCDTAC Meeting)

TOPIC	TRU	NIC	BCIT	UCFV	VCC	VCC	Kwantlen
	Engineering Design	**Mech / Arch / Civil**	**Architectural Technology**	**Architectural CADD**	**Architectural CADD**	**Arch / Civil & Structural**	**Architectural CADD**
CADD	**ARET 111 & 210** CADD & Advanced CADD	**DRT 181** Computer Assited Drafting - Autocad	**BLDG 1405** Architectural CAD 1	**ADT 1** Drafting Fundamentals and CAD	**DRFT 1101 & 1102** Basic Drafting 1 & 2	**DRFT 1101 & 1102** Basic Drafting 1 & 2	**CADD 1150** Computer Aided Design & Drafting
Introduction to Architecture	**ARET 112** Introduction to Architecture	**DRT 110 & 140** Architectural Draft/Materials		**ADT 3** Building Construction 1	**DRFT 1226** Construction Drawing Reading	**DRFT 1226** Construction Drawing Reading	**CADD 1110** Summative Project (House)
Drafting/Graphics	**ARET 110** Graphical Commnunications	**DRT 100** Introduction to Drafting					**CADD 1100** Drafting Fundamentals
Office Software		**DRT 185** Office Software for CADD Office					**CADD 1160** Office Software and Procedures
Building Information Modeling (BIM)/ 3D		**DRT 111** 3D Building Information Modeling			**DRFT 1252** 3D CAD		**CADA 1250** Building Information Model Software
Single Family Residential				**ADT 5** Final Architectural Project	**DRFT 1250** Single Family Residentail - Bldg Layout		**CADA 1210** Single Family Residential
Architectural Concepts					**DRFT 1250 & 1251** Single Family Residentiall - Bldg Layout	**DRFT 1320** Architectural Concepts	**CADA 1200** Architectural Fundamentals
Multi-Family Residential					**DRFT 1251** Mulit-Family Residential - Bldg Layout		**CADA 2100** Multi-Family Residential
Commercial					**DRFT 1354** Commercial Building		**CADA 1220** Commercial Building
Advanced Single Family Residential				**ADT 4** Building Construction 2			**CADA 1200 & 1210** Arch Fundamentals & Single Family Residential
Civil and Surveying	**ARET 140 & 141** Civil Subdivision & Surveying	**DRT 100 & 120** Topographic Civil Drafting & Surveying		**ADT 7** Civil Drafting and Surveying			

I do hereby agree with the course equivalencies as indicated in the Architectural Transfer Grid. Our program will honor these course equivalencies when receiving students from other institutions, and grant the number of credits equal to our course.

Institution Name UNIVERSITY OF THE FRASER VALLEY

Program Name ARCHITECTURAL DRAFTING

Print Name LARRY GRITZMAKER

Signed _____ Date 8 JAN 2010

Architectural CADD – Transfer Grid (as determined at the June 29 2009 BCDTAC Meeting)

TOPIC	TRU	NIC	BCIT	UCFV	VCC	VCC	Kwantlen
	Engineering Design	**Mech / Arch / Civil**	**Architectural Technology**	**Architectural CADD**	**Architectural CADD**	**Arch / Civil & Structural**	**Architectural CADD**
CADD	**ARET 111 & 210** CADD & Advanced CADD	**DRT 181** Computer Assited Drafting - Autocad	**BLDG 1405** Architectural CAD 1	**ADT 1** Drafting Fundamentals and CAD	**DRFT 1101 & 1102** Basic Drafting 1 & 2	**DRFT 1101 & 1102** Basic Drafting 1 & 2	**CADD 1150** Computer Aided Design & Drafting
Introduction to Architecture	**ARET 112** Introduction to Architecture	**DRT 110 & 140** Architectural Draft/Materials		**ADT 3** Building Construction 1	**DRFT 1226** Construction Drawing Reading	**DRFT 1226** Construction Drawing Reading	**CADD 1110** Summative Project (House)
Drafting/Graphics	**ARET 110** Graphical Commnunications	**DRT 100** Introduction to Drafting					**CADD 1100** Drafting Fundamentals
Office Software		**DRT 185** Office Software for CADD Office					**CADD 1160** Office Software and Procedures
Building Information Modeling (BIM)/ 3D		**DRT 111** 3D Building Information Modeling			**DRFT 1252** 3D CAD		**CADA 1250** Building Information Model Software
Single Family Residential		NOTE:		**ADT 5** Final Architectural Project	**DRFT 1250** Single Family Residentail - Bldg Layout		**CADA 1210** Single Family Residential
Architectural Concepts		DRT 181 + DRT 100 IS EQUIVALENT TO:			**DRFT 1250 & 1251** Single Family Residentiall - Bldg Layout	**DRFT 1320** Architectural Concepts	**CADA 1200** Architectural Fundamentals
Multi-Family Residential		VCC DRFT 1101 & 1102			**DRFT 1251** Mulit-Family Residential - Bldg Layout		**CADA 2100** Multi-Family Residential
Commercial		UCFV ADT 1			**DRFT 1354** Commercial Building		**CADA 1220** Commercial Building
Advanced Single Family Residential		DRT [illegible] 110 IS EQUIVALENT TO VCC DRFT 1250		**ADT 4** Building Construction 2			**CADA 1200 & 1210** Arch Fundamentals & Single Family Residential
Civil and Surveying	**ARET 140 & 141** Civil Subdivision & Surveying	**DRT 100 & 120** Topographic Civil Drafting & Surveying		**ADT 7** Civil Drafting and Surveying			

I do hereby agree with the course equivalencies as indicated in the Architectural Transfer Grid. Our program will honor these course equivalencies when receiving students from other institutions, and grant the number of credits equal to our course.

Institution Name NORTH ISLAND COLLEGE

Program Name DRAFTING CERTIFICATE

Print Name MICHAEL WHITMORE

Signed [signature] Date Jan 20/10

Architectural CADD – Transfer Grid (as determined at the June 29 2009 BCDTAC Meeting)

TOPIC	TRU	NIC	BCIT	UCFV	VCC	VCC	Kwantlen
	Engineering Design	**Mech / Arch / Civil**	**Architectural Technology**	**Architectural CADD**	**Architectural CADD**	**Arch / Civil & Structural**	**Architectural CADD**
CADD	**ARET 111 & 210** CADD & Advanced CADD	**DRT 181** Computer Assited Drafting - Autocad	**BLDG 1405** Architectural CAD 1	**ADT 1** Drafting Fundamentals and CAD	**DRFT 1101 & 1102** Basic Drafting 1 & 2	**DRFT 1101 & 1102** Basic Drafting 1 & 2	**CADD 1150** Computer Aided Design & Drafting
Introduction to Architecture	**ARET 112** Introduction to Architecture	**DRT 110 & 140** Architectural Draft/Materials		**ADT 3** Building Construction 1	**DRFT 1226** Construction Drawing Reading	**DRFT 1226** Construction Drawing Reading	**CADD 1110** Summative Project (House)
Drafting/Graphics	**ARET 110** Graphical Commnunications	**DRT 100** Introduction to Drafting					**CADD 1100** Drafting Fundamentals
Office Software		**DRT 185** Office Software for CADD Office					**CADD 1160** Office Software and Procedures
Building Information Modeling (BIM)/ 3D		**DRT 111** 3D Building Information Modeling			**DRFT 1252** 3D CAD		**CADA 1250** Building Information Model Software
Single Family Residential				**ADT 5** Final Architectural Project	**DRFT 1250** Single Family Residentail - Bldg Layout		**CADA 1210** Single Family Residential
Architectural Concepts					**DRFT 1250 & 1251** Single Family Residentiall - Bldg Layout	**DRFT 1320** Architectural Concepts	**CADA 1200** Architectural Fundamentals
Multi-Family Residential					**DRFT 1251** Mulit-Family Residential - Bldg Layout		**CADA 2100** Multi-Family Residential
Commercial					**DRFT 1354** Commercial Building		**CADA 1220** Commercial Building
Advanced Single Family Residential				**ADT 4** Building Construction 2			**CADA 1200 & 1210** Arch Fundamentals & Single Family Residential
Civil and Surveying	**ARET 140 & 141** Civil Subdivision & Surveying	**DRT 100 & 120** Topographic Civil Drafting & Surveying		**ADT 7** Civil Drafting and Surveying			

I do hereby agree with the course equivalencies as indicated in the Architectural Transfer Grid. Our program will honor these course equivalencies when receiving students from other institutions, and grant the number of credits equal to our course.

Institution Name VANCOUVER COMMUNITY COLLEGE

Program Name ARCHITECTURAL DRAFTING TECH

Print Name GRAHAM HUCKIN

Signed G Huckin Date 7 JAN 2010

Architectural CADD – Transfer Grid (as determined at the June 29 2009 BCDTAC Meeting)

TOPIC	TRU	NIC	BCIT	UCFV	VCC	VCC	Kwantlen
	Engineering Design	**Mech / Arch / Civil**	**Architectural Technology**	**Architectural CADD**	**Architectural CADD**	**Arch / Civil & Structural**	**Architectural CADD**
CADD	**ARET 111 & 210** CADD & Advanced CADD	**DRT 181** Computer Assited Drafting - Autocad	**BLDG 1405** Architectural CAD 1	**ADT 1** Drafting Fundamentals and CAD	**DRFT 1101 & 1102** Basic Drafting 1 & 2	**DRFT 1101 & 1102** Basic Drafting 1 & 2	**CADD 1150** Computer Aided Design & Drafting
Introduction to Architecture	**ARET 112** Introduction to Architecture	**DRT 110 & 140** Architectural Draft/Materials		**ADT 3** Building Construction 1	**DRFT 1226** Construction Drawing Reading	**DRFT 1226** Construction Drawing Reading	**CADD 1110** Summative Project (House)
Drafting/Graphics	**ARET 110** Graphical Commnunications	**DRT 100** Introduction to Drafting					**CADD 1100** Drafting Fundamentals
Office Software		**DRT 185** Office Software for CADD Office					**CADD 1160** Office Software and Procedures
Building Information Modeling (BIM)/ 3D		**DRT 111** 3D Building Information Modeling			**DRFT 1252** 3D CAD		**CADA 1250** Building Information Model Software
Single Family Residential				**ADT 5** Final Architectural Project	**DRFT 1250** Single Family Residentail - Bldg Layout		**CADA 1210** Single Family Residential
Architectural Concepts					**DRFT 1250 & 1251** Single Family Residentiall - Bldg Layout	**DRFT 1320** Architectural Concepts	**CADA 1200** Architectural Fundamentals
Multi-Family Residential					**DRFT 1251** Mulit-Family Residential - Bldg Layout		**CADA 2100** Multi-Family Residential
Commercial					**DRFT 1354** Commercial Building		**CADA 1220** Commercial Building
Advanced Single Family Residential				**ADT 4** Building Construction 2			**CADA 1200 & 1210** Arch Fundamentals & Single Family Residential
Civil and Surveying	**ARET 140 & 141** Civil Subdivision & Surveying	**DRT 100 & 120** Topographic Civil Drafting & Surveying		**ADT 7** Civil Drafting and Surveying			

* I do hereby agree with the course equivalencies as indicated in the Architectural Transfer Grid. Our program will honor these course equivalencies when receiving students from other institutions, and grant the number of credits equal to our course. * with the following proviso:

Institution Name BCIT

Program Name Architectural & Building Engineering Technology

Print Name Julia Hein, Program Head

Signed Julia Hein Date Dec. 17, 2010

* If there is a recency gap of more than 1 year, and/or the final mark is less than 70%, we recommend taking BLDG 1405. As per departmental policy, we reserve the right to deny transfer credits for final marks less than 65% in the "equivalent course"

Architectural CADD – Transfer Grid (as determined at the June 29 2009 BCDTAC Meeting)

TOPIC	TRU	NIC	BCIT	UCFV	VCC	VCC	Kwantlen
	~~Engineering~~ ARET ~~Design~~	Mech / Arch / Civil	Architectural Technology	Architectural CADD	Architectural CADD	Arch / Civil & Structural	Architectural CADD
CADD	**ARET 111 & 210** CADD & Advanced CADD	**DRT 181** Computer Assited Drafting - Autocad	**BLDG 1405** Architectural CAD 1	**ADT 1** Drafting Fundamentals and CAD	**DRFT 1101 & 1102** Basic Drafting 1 & 2	**DRFT 1101 & 1102** Basic Drafting 1 & 2	**CADD 1150** Computer Aided Design & Drafting
Introduction to Architecture	**ARET 112** Introduction to Architecture	**DRT 110 & 140** Architectural Draft/Materials		**ADT 3** Building Construction 1	**DRFT 1226** Construction Drawing Reading	**DRFT 1226** Construction Drawing Reading	**CADD 1110** Summative Project (House)
Drafting/Graphics	**ARET 110** Graphical Commnunications	**DRT 100** Introduction to Drafting					**CADD 1100** Drafting Fundamentals
Office Software		**DRT 185** Office Software for CADD Office					**CADD 1160** Office Software and Procedures
Building Information Modeling (BIM)/ 3D		**DRT 111** 3D Building Information Modeling			**DRFT 1252** 3D CAD		**CADA 1250** Building Information Model Software
Single Family Residential				**ADT 5** Final Architectural Project	**DRFT 1250** Single Family Residentail - Bldg Layout		**CADA 1210** Single Family Residential
Architectural Concepts					**DRFT 1250 & 1251** Single Family Residentiall - Bldg Layout	**DRFT 1320** Architectural Concepts	**CADA 1200** Architectural Fundamentals
Multi-Family Residential					**DRFT 1251** Mulit-Family Residential - Bldg Layout		**CADA 2100** Multi-Family Residential
Commercial					**DRFT 1354** Commercial Building		**CADA 1220** Commercial Building
Advanced Single Family Residential				**ADT 4** Building Construction 2			**CADA 1200 & 1210** Arch Fundamentals & Single Family Residential
Civil and Surveying	**ARET 140 & 141** Civil Subdivision & Surveying	**DRT 100 & 120** Topographic Civil Drafting & Surveying		**ADT 7** Civil Drafting and Surveying			

I do hereby agree with the course equivalencies as indicated in the Architectural Transfer Grid. Our program will honor these course equivalencies when receiving students from other institutions, and grant the number of credits equal to our course.

Institution Name T.R.U.

Program Name A.R.E.T.

Print Name JOHN DUMESNIL (CHAIR)

Signed _____ Date FEB 8/2010

Architectural CADD – Transfer Grid (as determined at the June 29 2009 BCDTAC Meeting)

TOPIC	TRU	NIC	BCIT	UCFV	VCC	VCC	Kwantlen
	Engineering Design	**Mech / Arch / Civil**	**Architectural Technology**	**Architectural CADD**	**Architectural CADD**	**Arch / Civil & Structural**	**Architectural CADD**
CADD	**ARET 111 & 210** CADD & Advanced CADD	**DRT 181** Computer Assited Drafting - Autocad	**BLDG 1405** Architectural CAD 1	**ADT 1** Drafting Fundamentals and CAD	**DRFT 1101 & 1102** Basic Drafting 1 & 2	**DRFT 1101 & 1102** Basic Drafting 1 & 2	**CADD 1150** Computer Aided Design & Drafting
Introduction to Architecture	**ARET 112** Introduction to Architecture	**DRT 110 & 140** Architectural Draft/Materials		**ADT 3** Building Construction 1	**DRFT 1226** Construction Drawing Reading	**DRFT 1226** Construction Drawing Reading	**CADD 1110** Summative Project (House)
Drafting/Graphics	**ARET 110** Graphical Commnunications	**DRT 100** Introduction to Drafting					**CADD 1100** Drafting Fundamentals
Office Software		**DRT 185** Office Software for CADD Office					**CADD 1160** Office Software and Procedures
Building Information Modeling (BIM)/ 3D		**DRT 111** 3D Building Information Modeling			**DRFT 1252** 3D CAD		**CADA 1250** Building Information Model Software
Single Family Residential				**ADT 5** Final Architectural Project	**DRFT 1250** Single Family Residentail - Bldg Layout		**CADA 1210** Single Family Residential
Architectural Concepts					**DRFT 1250 & 1251** Single Family Residentiall - Bldg Layout	**DRFT 1320** Architectural Concepts	**CADA 1200** Architectural Fundamentals
Multi-Family Residential					**DRFT 1251** Mulit-Family Residential - Bldg Layout		**CADA 2100** Multi-Family Residential
Commercial					**DRFT 1354** Commercial Building		**CADA 1220** Commercial Building
Advanced Single Family Residential				**ADT 4** Building Construction 2			**CADA 1200 & 1210** Arch Fundamentals & Single Family Residential
Civil and Surveying	**ARET 140 & 141** Civil Subdivision & Surveying	**DRT 100 & 120** Topographic Civil Drafting & Surveying		**ADT 7** Civil Drafting and Surveying			

I do hereby agree with the course equivalencies as indicated in the Architectural Transfer Grid. Our program will honor these course equivalencies when receiving students from other institutions, and grant the number of credits equal to our course.

Institution Name Kwantlen Polytechnic University

Program Name CADD Technologies

Print Name Joanne Massey

Signed  Date Dec. 18 2009

Structural CADD – Transfer Grid (as determined at the June 29 2009 BCDTAC Meeting)

TOPIC	NIC Mech / Arch / Civil	BCIT Structural CADD	VCC Arch / Civil & Structural	VCC Steel Detailing	Kwantlen Architectural CADD
Site Work	**DRT 120** Topographic & Civil Detailing		**DRFT 1210** Industrial Site Layout		
Civil 3D Modeling	**DRT 121** Designing with Civil 3D		**DRFT 1211** Alignment Detailing		**CADD 2110** Site Work with 3D Software
Concrete			**DRFT 1322** Foundation & Ground Floor Systems		**CADS 1200** Structural Fundamentals and Concrete
Steel			**DRFT 1321** Steel Structures		**CADS 1210** Structural Steel
Steel Detailing		**ASCT 1140** Steel Detailing		**DRFT 1350** Detailing Using Geometry	

I do hereby agree with the course equivalencies as indicated in the Architectural Transfer Grid. Our program will honor these course equivalencies when receiving students from other institutions, and grant the number of credits equal to our course.

Institution Name NORTH ISLAND COLLEGE

Program Name DRAFTING CERTIFICATE

Print Name MICHAEL CWHITMORE

Signed _____ Date Jan. 20/10

Structural CADD – Transfer Grid (as determined at the June 29 2009 BCDTAC Meeting)

TOPIC	NIC Mech / Arch / Civil	BCIT Structural CADD	VCC Arch / Civil & Structural	VCC Steel Detailing	Kwantlen Architectural CADD
Site Work	**DRT 120** Topographic & Civil Detailing		**DRFT 1210** Industrial Site Layout		
Civil 3D Modeling	**DRT 121** Designing with Civil 3D		**DRFT 1211** Alignment Detailing		**CADD 2110** Site Work with 3D Software
Concrete			**DRFT 1322** Foundation & Ground Floor Systems		**CADS 1200** Structural Fundamentals and Concrete
Steel			**DRFT 1321** Steel Structures		**CADS 1210** Structural Steel
Steel Detailing		**ASCT 1140** Steel Detailing		**DRFT 1350** Detailing Using Geometry	

I do hereby agree with the course equivalencies as indicated in the ~~Architectural~~ Transfer Grid. Our program will honor these course equivalencies when receiving students from other institutions, and grant the number of credits equal to our course.

STRUCTURAL

Institution Name VANCOUVER COMMUNITY COLLEGE

Program Name ARCHITECTURAL CIVIL STRUCTURAL DRAFTING TECH

Print Name GRAHAM HUCKIN

Signed G P Huckin Date 7 JAN 2010

Structural CADD – Transfer Grid (as determined at the June 29 2009 BCDTAC Meeting)

TOPIC	NIC Mech / Arch / Civil	BCIT Structural CADD	VCC Arch / Civil & Structural	VCC Steel Detailing	Kwantlen Architectural CADD
Site Work	**DRT 120** Topographic & Civil Detailing		**DRFT 1210** Industrial Site Layout		
Civil 3D Modeling	**DRT 121** Designing with Civil 3D		**DRFT 1211** Alignment Detailing		**CADD 2110** Site Work with 3D Software
Concrete			**DRFT 1322** Foundation & Ground Floor Systems		**CADS 1200** Structural Fundamentals and Concrete
Steel			**DRFT 1321** Steel Structures		**CADS 1210** Structural Steel
Steel Detailing		**ASCT 1140** Steel Detailing		**DRFT 1350** Detailing Using Geometry	

↑ STRUCTURAL

I do hereby agree with the course equivalencies as indicated in the ~~Architectural~~ Transfer Grid. Our program will honor these course equivalencies when receiving students from other institutions, and grant the number of credits equal to our course.

Institution Name BCIT

Program Name STRUCTURAL CADD & GRAPHICS

Print Name ANNA TRAJKOVIC

Signed A Trajkovic Date ~~Dec~~. 11 '09.

Structural CADD – Transfer Grid (as determined at the June 29 2009 BCDTAC Meeting)

TOPIC	NIC	BCIT	VCC	VCC	Kwantlen
	Mech / Arch / Civil	**Structural CADD**	**Arch / Civil & Structural**	**Steel Detailing**	**Architectural CADD**
Site Work	**DRT 120** Topographic & Civil Detailing		**DRFT 1210** Industrial Site Layout		
Civil 3D Modeling	**DRT 121** Designing with Civil 3D		**DRFT 1211** Alignment Detailing		**CADD 2110** Site Work with 3D Software
Concrete			**DRFT 1322** Foundation & Ground Floor Systems		**CADS 1200** Structural Fundamentals and Concrete
Steel			**DRFT 1321** Steel Structures		**CADS 1210** Structural Steel
Steel Detailing		**ASCT 1140** Steel Detailing		**DRFT 1350** Detailing Using Geometry	

I do hereby agree with the course equivalencies as indicated in the Structural Transfer Grid. Our program will honor these course equivalencies when receiving students from other institutions, and grant the number of credits equal to our course.

Institution Name Kwantlen Polytechnic University

Program Name CADD Technologies

Print Name Joanne Massey

Signature:  Date: Dec. 18 2009

This Transfer Grid is incomplete - it will be ratified at the June 2010 BCDTAC Meeting

Note: None of the follow matches are finalized. The yellow ones are likely to be correct, the red ones need more information.
Note: Some matches are only one-way, please read the comments

Course Matches, BCIT and OC:

	BCIT	OC	Comments
Drafting Fundamentals	Mech 1100, 1105	Mech 131	BCIT has many hours but topics covered are the same. Both use
Drafting II	Mech 2201	Mech 142	Credit for BCIT student transferring to OC
Drafting II	Mech 2201	Mech 142, 237	Credit for OC student transferring to BCIT. OC uses Pro/E, BCIT uses Inventor - is this acceptable to BCIT?
3D CAD			Difficulty of Pro/E compared to other software, requirement of Pro/E in Mech 240 makes it difficult to allow others credit for Mech 237
Statics	Mech 1141	Mech 134	Credit for BCIT student transferring to OC
Statics	Mech 1141	Mech 134, 136, 144	Credit for OC student transferring to BCIT
Mechanics/Dynamics	Mech 2241	Mech 136, 144	Credit for OC student transferring to BCIT. Won't work other way because Mech 144 has more topics not covered.
Manufacturing Processes	Mech 1210	Mech 148	
Machine Design	2nd year course	2nd year course	
Fluids	2nd year course		
Materials			OC doesn't do chemistry so no equivalent. Does BCIT do phase diagrams, heat treatment?
Strength of Materials	Mech 2240	Mech 147	
Math 1	Math 1491	Math 135	
Math 2		Math 145	Math 2491 doesn't have statistics.
Physics	Physics 2149	Mech 136, ELEN 236	Credit for OC student transferring to BCIT
Physics	Physics 2149, Mech 2241, 1141, 1120	Mech 136	Credit for BCIT student transferring to OC

Course Matches, Camosun and OC:

	Camosun	OC	Comments
Drafting Fundamentals	ENGR 151M	Mech 131	
Drafting II		Mech 142	Camosun Mech 153 covers some of this but it also combines machine design and 3D in one course. Need more details to
3D CAD			Difficulty of Pro/E compared to other software, requirement of Pro/E in Mech 240 makes it difficult to allow others credit for Mech 237
Statics		Mech 134	Camosun Mech 173 is combined statics and materials. Sufficient coverage? Need more info from Camosun
Mechanics/Dynamics	Mech 175, Phys 191	Mech 136, 144	Credit for OC student transferring to BCIT. Doesn't work the other way because Phys 191 doesn't cover waves, sound, light, optics.
Manufacturing Processes		Mech 148	Need more detail from Camosun re Mech 161A&B
Machine Design	2nd year course	2nd year course	
Fluids		Mech 146	Need more detail from Camosun re Engr 177
Materials	Chem 160?, Mech 173?	Mech 133	Credit for Camosun student transferring to OC. Doesn't work other way because OC has no chemistry. NOTE: only applies if Camosun do lab testing of materials - need more info from Camosun
Strength of Materials	Mech 173, 271	Mech 147	Credit for Camosun student transferring to OC
Strength of Materials	Mech 173, 271	Mech 134, 133, 147	Credit for OC student transferring to Camosun. Covers more than Strength of Materials.
Math 1	Math 185	Math 135	
Math 2	Math 187, 189	Math 145	
Physics	Phys 191,192	Mech 136, ELEN 236	Credit for OC student transferring to Camosun
Physics	Phys 191,192	Mech 136	Credit for Camosun student transferring to OC

Course Matches, Camosun and BCIT:

	Camosun	BCIT	Comments
Drafting Fundamentals	ENGR 151M	Mech 1100, 1105	
Drafting II		Mech 2201	Camosun ENGR 153 is a much broader course. Does it cover enough material?
3D CAD		Mech 2201	Camosun ENGR 153 is a much broader course. Does it cover enough material?
Statics		Mech 1141	Camosun Mech 173 is combined statics and materials. Sufficient coverage? Need more info from Camosun
Mechanics/Dynamics	Mech 175, Phys 191	Mech 2241	
Manufacturing Processes		Mech 1210	Need more detail from Camosun re Mech 161A&B
Machine Design	2nd year course		
Fluids		2nd year course	
Materials	Chem 160, Mech 173		Does BCIT do Phase Diagrams, Alloying, Surface Treatment, & Heat Treatment? Does Camosun do Materials lab tests?
Strength of Materials	Mech 271	Mech 2239	Some differences. Close enough?
Math 1	Math 185	Math 1491	Some differences. Close enough?
Math 2	Math 187, 189	Math 2491	Some differences. Close enough?
Physics	Phys 191,192	Physics 2149, Mech 2241, 1120	Difficult to relate these because topics dealt with in variety of courses. The courses shown are related, but not equivalent to one

Appendix B – **Signed Block Transfer Agreements**

CADD Transfer Innovations Project

NIC Camosun Block Transfer Agreement

NIC – Michael Whitmore

Camosun – Ross Lyle

Kwantlen Camosun Block Transfer Agreement

Kwantlen – Joanne Massey

Camosun – Ross Lyle

Block Transfer Agreement

Drafting Certificate Program
North Island College

And

Engineering Graphics Technician Certificate Program
Camosun College

Students graduating from Camosun College with a Certificate in Engineering Graphics Technician will be granted 6 credits toward a Certificate in Drafting from North Island College.

These 6 credits represent completion of

DRT 100 - Introduction to Drafting
DRT 181 – Computer Aided Drafting – Autocad

FURTHER REFINEMENTS WILL BE ADDRESSED IN JUNE 2010

Signatures:

Name: Michael Whitmore

Date: Jan 23/10

North Island College
Drafting Certificate Program

Name: Ross Lyle

Date: Feb 22, 2010

Camosun College
Engineering Graphics Technician Certificate Program

Block Transfer Agreement

CADD Technologies Diploma Program
Kwantlen Polytechnic University

And

Engineering Graphics Technician Certificate Program
Camosun College

Students graduating from Camosun College with a Certificate in Engineering Graphics Technician will be granted 15 credits and a Citation in CADD Technologies from Kwantlen Polytechnic University.

These 15 credits represent completion of:

CADD 1100 – Drafting Fundamentals (4 cr)
CADD 1110 – Summative Project (4 cr)
CADD 1150 – CADD Software (4 cr)
CADD 1160 – Office Software and Procedures (3 cr)

Signatures:

Name: Joanne Massey

_____ Date: February 5 2010

Kwantlen Polytechnic University
CADD Technologies Diploma Program

Name: Ross Lyle

_____ Date: Feb 22, 2010

Camosun College
Engineering Graphics Technician Certificate Program

Appendix C

Drafting Technologies Transfer Innovations Project – Interim Report

July 8, 2009

Prepared by: Joanne Massey
Project Coordinator

Timeline	**Activity**
January 2009	Sent an announcement to all existing BC Drafting Articulation Committee (BCDTAC) members informing them of the schedule of events for the Transfer Innovations project.
January 2009	Contacted Okanagan College: Quincy DeWitt – Mechanical Engineering Technology Dept Chair Tom Guenther – Civil Engineering Technology Dept Chair Informed them of the Transfer Innovations project, and invited them to the June 2009 BCDTAC meeting. They both agreed to attend
March 2009	Arranged to have the BCDTAC June 2009 meeting moved from Camosun to the Lower Mainland (Kwantlen) to ensure a good attendance
March – April 2009	Collected courses and outcomes Compiled initial Program Grid of all CADD related programs and courses in BC Institutions Determined that the most effective Transfer Grid would include programs in the following areas: Architectural Civil Mechanical Structural
May 2009	Contacted BCIT Paul Morrison - Mechanical Engineering Technology Assoc. Dean Julia Hein – Architectural and Building Technology Dept Chair Paul Thurston - Civil Engineering Dept Chair Darryl Mack – Enrollment Planning (invited as a guest) Informed them of the Transfer Innovations project, and invited them to the June 2009 BCDTAC meeting. Paul Thurston asked for their Civil Engineering program to be removed from the Transfer Grid due to current accreditation process with the Canadian Engineering Accreditation Board. Julia Hein indicated that she would be on vacation, but that she would try to find a delegate to attend. Paul Rodham agreed to attend.

Paul Morrison agreed to attend.

May 2009 — Sent out initial Program Grid of all CADD related programs and courses in BC Institutions to all institutions attending the June 2009 BCDTAC meeting

June 1 2009 — Sent out Transfer Grid sorted by categories and topics.
(actual document that would be discussed and finalized at the June 2009 BCDTAC meeting)

June 29 & 30 2009 — **BCDTAC Annual Meeting** - Kwantlen Polytechnic University
(see BCDTAC June 2009 Minutes of Meeting included in this report)

Transfer Grid
Broke into discipline groups to discuss and establish Transfer in each discipline area:

Architectural
*Civil/Structural
Mechanical

*Okanagan College Civil Dept Chair did not attend. With the BCIT Civil program having been removed from the Transfer Grid, that left only Camosun on the Grid with a Civil program. There was no articulation carried out for Civil. The Civil/Structural group worked on Structural Transfer only. We plan to included the two Civil programs in the annual review of the Transfer Grid at the BCDTAC 2010 meeting, and add it to the Transfer Grid if appropriate.

Block Transfer:
After careful scrutiny of the Transfer Grid it was determined that 2 Block Transfer agreements could be facilitated:

1) Camosun Engineering Graphics Technician Certificate will receive credit for Kwantlen's CADD Citation
2) Camosun Engineering Graphics Technician Certificate will receive credit for North Island College Drafting – first semester

Institutional Responsibility:
Members were informed that the Registrar's office at each institution must be given written notification of these transfer agreements. A contact list of BCCAT representatives for each institution was given to members

July 2009 — Interim Report submitted
Transfer Grids by discipline, edited as per articulation discussion, will be submitted to Joanne Massey by Sept 15 2009
Transfer Grids will be put into a format suitable for BCCAT website
Block Transfer agreements will be written up

Appendix D – **CADD Transfer Innovations Project**

Excerpt from:

British Columbia Drafting Technologies Articulation Meeting
Minutes from Monday/Tuesday, June 29 & 30, 2009
Kwantlen Polytechnic University – Cloverdale Campus
5500 – 180th St., Surrey, B.C. Room 2112

Present:

Graham Huckin, Chair	Vancouver Community College (VCC)
Joanne Massey, Co-chair	Kwantlen Polytechnic University
Larry Gritzmaker	University of the Fraser Valley (UFV)
Gabriella Ohlhauser	Vancouver Community College (VCC)
Mike Whitmore	North Island College (NIC)
Paul Rodham	BC Institute of Technology (BCIT)
Anna Trajkovic	BC Institute of Technology (BCIT)
Darryl Mack	BC Institute of Technology (BCIT)
Ross Lyle	Camosun College (CC)
Quincy DeWitt	Okanogan Univerity College
Paul Morrison	BC Institute of Technology (BCIT)
Christina Heinrick, Minutes	Kwantlen Polytechnic University

Introduction to Transfer Grid Project – Joanne Massey (Kwantlen Polytechnic University) (see Appendix B)

Why? We all are threaded to each other through CADD regardless of what drafting programs we teach. There are new members and faculty amongst the various institutions.

Course Comparison: Programs (and courses) are sorted by topic area on Master Matrix. To approve transfer credit between courses, it is required that there is a minimum of 80% commonality.
Goals of two day meeting:

1. For each discipline to agree on transfer grid and process at least the first year of courses.
2. To observe and possibly make agreements on some block transfers.
3. Articulate transfer of "Uncategorized" courses.
4. Establish a procedure to annually review and update both transfer agreements.
5. Sign up for Moodle site.
6. Establish a chart to identify similarities and differences.

Note: Block transfer is defined as "the process whereby a block of credits is granted to students who have successfuly completed a certificate, diploma or cluster of courses that are recognized as having educational wholeness or integrity and that can be related meaningfully to another credential program."
Each committee member at each institution will be responsible for sending articulated agreements to their respective registrar's office (see Appendix C, contact list included in meeting package).

Articulation Activity:

Members broke into discipline groups to discuss and finalize Transfer Grid for each area.

Architectural
Christina Heinrick, Michael Whitmore, Paul Rodham, Gabriella Olhauser, Larry Gritzmaker

Civil / Structural
Graham Huckin, Anna Trajkovic, Joanne Massey

Mechanical
Ross Lyle, Paul Morrison, Quincy DeWitt

Members reconvened after establishing Transfer Grid for each area:

Determined which grid format to submit to BCCAT

Determined that the Transfer Grids would be reviewed and updated every year at the annual BCDTAC meeting

Members were informed that the Registrar's office at each institution must be given written notification of these transfer agreements. A contact list of BCCAT representatives for each institution was given to members (see Appendix C)

Suggestion to include sample project work to help facilitate outcome understandings during follow up review and updates sessions of the articulation and transfer credit agreements.

An interim report to be sent to BCCAT by Joanne Massey in the next week (see Appendix D)

One member from each discipline group volunteered to edit the Transfer Grid to reflect the outcome of the break-out session.

Architectural - Christina Heinrick
Civil / Structural – Joanne Massey
Mechanical - Quincy DeWitt

Edited Transfer Grids will be returned to Joanne Massey by **September 15 2009**.

Day 2 – Tuesday, June 30, 2009

Chair, Graham Huckin called meeting to order at 9:10am.

Present:

Graham Huckin, Chair	Vancouver Community College (VCC)
Joanne Massey, Host	Kwantlen Polytechnic University
Larry Gritzmaker	University of the Fraser Valley (UFV)
Gabriella Ohlhauser	Vancouver Community College (VCC)
Mike Whitmore	North Island College (NIC)
Ross Lyle	Camosun College (CC)
Quincy DeWitt	Okanogan Univerity College
Christina Heinrick	Kwantlen Polytechnic University

Block Transfer Agreements

After careful scrutiny of the Transfer Grid on the previous day, it was determined that 2 Block Transfer agreements could be facilitated:

1) Camosun Engineering Graphics Technician Certificate will receive credit for Kwantlen's CADD Citation
2) Camosun Engineering Graphics Technician Certificate will receive credit for North Island College Drafting – first semester of a two-semester Certificate.

APPENDIX E CADD Transfer Innovations Project - Participating Programs

CADD Certificate - 1 Year							
NIC 40 Weeks **Mech / Arch / Civil**	**UCFV** 40 Weeks **Architectural**	**BCIT** 40 Weeks **Architectural**	**BCIT** 40 Weeks **Structural**	**VCC** 40 Weeks **Architectural**	**VCC** 40 Weeks **Arch / Civil & Structural**	**VCC** 40 Weeks **Steel Detailing**	**Camosun** 2 Semesters **Eng. Graph. Technician**
1st Semester	1st Semester	1st Semester	1st Semester	1st Semester	1st Semester	1st Semester	1st Semester
DRT 100 Introduction to Drafting	**ADT 1** Drafting Fundamentals and CAD	**ASCT 1010** Introductory Graphics	**ASCT 1010** Introductory Graphics	**DRFT 1101** Basic Drafting 1	**DRFT 1101** Basic Drafting 1	**DRFT 1101** Basic Drafting 1	**ENGL 170** Tech Profess Communications1
DRT 181 Computer Assited Drafting - Autocad		**ASCT 1020** Introduction to CADD Drafting	**ASCT 1020** Introduction to CADD Drafting	**DRFT 1102** Basic Drafting 2	**DRFT 1102** Basic Drafting 2	**DRFT 1102** Basic Drafting 2	**ENGR 151M** Engineering Drawing 1 - 2D CAD
DRT 140 Materials of Construction	**ADT 2** Applied Mathematics	**ASCT 1050** Introduction to Drafting Mathematics	**ASCT 1050** Introduction to Drafting Mathematics				**ENGR 152** Technical Publishing Applications
DRT 159 Technical Writing		**ASCT 1200** Planning and Urban Design	**ASCT 1110** Applied Statics				**ENGR 158** Applications in Computing
DRT 185 Office Software for Drafting Technologies		**ASCT 1210** Computer Applications for Architecture	**ASCT 1120** Structural Steel Design and Detailing				**ENGR 178** Commercial Practices 1
		Asct 1220 Design and Construction Documents	**ASCT 1130** Reinforced Concrete Structures				
		ASCT 1230 Architectural Theory and History	**ASCT 1140** Steel Construction				
2nd Semester	2nd Semester	2nd Semester	2nd Semester	2nd Semester	2nd Semester	2nd Semester	2nd Semester
DRT 110 Architectural Drafting	**ADT 3** Building Construction 1	**ASCT 1240** Architectural Graphics	**ASCT 1150** Wood Frame Construction	**DRFT 1250** Single Family Residentail - Bldg Layout	**DRFT 1226** Construction Drawing Reading	**DRFT 1230** Steel Properties and Fabrication	**ENGR 154** Design Visualization
DRT 120 Topographic & Civil Drafting	**ADT 6** Introduction to Structures	**ASCT 1245** Introduction to Architectural 3D Modeling	**ASCT 1160** Presentations and Commnunications	**DRFT 1251** Mulit-Family Residential - Bldg Layout	**DRFT 1320** Architectural Concepts	**DRFT 1231** Square Framing	**ENGR 188** Commercial Practices 2
DRT 111 3D Building Information Modeling	**ADT 7** Civil Drafting and Surveying	**ASCT 1250** Codes and Regulations	**ASCT 1170** Computer Aided Design	**DRFT 1226** Construction Drawing Reading	**DRFT 1210** Industrial Site Layout	**DRFT 1232** Applied Geometry	**ENGR 189** CAD Projects
	CMNS 145 Technical Commnunications for Drafting	**ASCT 1260** Construction Materials and Assemblies		**DRFT 1354** Commercial/Office Layouts	**DRFT 1211** Alignment Detailing	**DRFT 1359** 3D Detailing Software	**ENGR 198** Technical Specifications
		ASCT 1270 Building Construction			**DRFT 1212** Marine Facilites	DRFT 1326 Job Search Skills	**MECH 153** Mechanical Components & 3D CAD
							ENGR 199 Engineering Graphics Practicum
3rd Semester	3rd Semester	3rd Semester	3rd Semester	3rd Semester	3rd Semester	3rd Semester	3rd Semester
DRT 121 Designing with Civil 3D	**ADT 4** Building Construction 2	**ASCT 1280** Project Management and Controls	**ASCT 1180** Structural Graphics	**DRFT 1252** 3D CAD	**DRFT 1321** Steel Structures	**DRFT 1350** Detailing Using Geometry	
DRT 100 Practical Surveying	**ADT 5** Final Architectural Project	**ASCT 1290** Presentations and Communications	**ASCT 1190** Mechanics of Materials	**DRFT 1355** Commercial / Office Layouts	**DRFT 1322** FoundatiOn and Ground Floor Systems	**DRFT 1351** Heavy Steel Framing	
		ASCT 1295 Professional Practice	**ASCT 1195** Building Code	**DRFT 1326** Virtual Architectural Drafting Office	**DRFT 1323** Concrete Building Components	**DRFT 1352** Steel Trusses	
				DRFT 1326 Job Search Skills	**DRFT 1325** Virtual Civil/Structural Draft. Office	**DRFT 1353** Virtual Steel Detailing Office	
					DRFT 1326 Job Search Skills		

APPENDIX F CADD Transfer Innovations Project - Participating Programs

CADD Diploma - 2 Years			
Kwantlen 4 Semesters **Architectural**	**Kwantlen** 4 Semesters **Structural**	**Kwantlen** 4 Semesters **Civil**	**Kwantlen** 4 Semesters **Manufacturing**
1st Semester	1st Semester	1st Semester	1st Semester
CADD 1100 Drafting Fundamentals	**CADD 1100** Drafting Fundamentals	**CADD 1100** Drafting Fundamentals	**CADD 1100** Drafting Fundamentals
CADD 1150 Computer Aided Design & Drafting	**CADD 1150** Computer Aided Design & Drafting	**CADD 1150** Computer Aided Design & Drafting	**CADD 1150** Computer Aided Design & Drafting
CADD 1110 Summative Project (House)	**CADD 1110 Summative Project (House)**	**CADD 1110** Summative Project (House)	**CADD 1110** Summative Project (House)
CADD 1160 Office Software and Procedures	**CADD 1160** Office Software and Procedures	**CADD 1160** Office Software and Procedures	**CADD 1160** Office Software and Procedures
2nd Semester	2nd Semester	2nd Semester	2nd Semester
CADA 1200 Architectural Fundamentals	**CADS 1200** Structural Fundamentals & Steel	**CADC 1200** Civil and Surveying Fundamentals	**CADM 1200** Manuf & Fabrication Fundamentals
CADA 1210 Single Family Residential	**CADS 1210** Structural Concrete	**CADC 1210** Land Development Subdivision	**CADM 1210** Comonent Ass'y & Details
CADA 1220 Commercial Building	**CADS 1220** Tjmber and Wood Framing	**CADC 1220** Transportation	**CADM 1220** Integrated Machine Design
CADA 1250 Building Information Model Softare	**CADS 1250** Building Information Model Softare	**CADC 1250** Land Development Software	**CADM 1250** 3D Parametric Modeling Software
3rd Semester	3rd Semester	3rd Semester	3rd Semester
CADA 2100 Multi-Family Residential	**CADS 2100** Site Work	**CADC 2100** Civil Design Principles	**CADM 2100** Tool & Die Design
CADA 2150 Building Information Modeling Project	**CADS 2150** Building Information Modeling Project	**CADC 2150** Civil Design Software	**CADM 2150** Advanced 3D Parametric Software
CMNS 1115 Writing for Specialized Workplace	**CMNS 1115** Writing for Specialized Workplace	**CMNS 1115** Writing for Specialized Workplace	**CMNS 1115** Writing for Specialized Workplace
CADD 2160 Professional Practice	**CADD 2160** Professional Practice	**CADD 2160** Professional Practice	**CADD 2160** Professional Practice
ENGQ 1099 Writing Skills with Reading	**ENGQ 1099** Writing Skills with Reading	**ENGQ 1099** Writing Skills with Reading	**ENGQ 1099** Writing Skills with Reading
4th Semester	4th Semester	4th Semester	4th Semester
CADA 2200 Multi-Use Complex	**CADS 2200** Pre-fab Pre-stress Concrete	**CADC 2200** GIS	**CADM 2200** CNC Design
CADA 2250 Architectural Rendering and Presentation	**CADS 2250** Steel Detailing 3D software	**CADC 2250** GIS Software	**CADM 2250** CNC Software
MATH 1112 Math 12	**MATH 1112** Math 12	**MATH 1112** Math 12	**MATH 1112** Math 12
CADD 2260 Professional Practice 2	**CADD 2260** Professional Practice 2	**CADD 2260** Professional Practice 2	**CADD 2260** Professional Practice 2
PHYS 1100 Physics 12	**PHYS 1100** Physics 12	**PHYS 1100** Physics 12	**PHYS 1100** Physics 12

APPENDIX G CADD Transfer Innovations Project: Participating Programs

Technology Diploma - 2 Years							3 Years
Camosun 4 Semesters **Civil Technology**	**Camosun** 4 Semesters **Mech Technology**	**BCIT** 4 Semesters **Building Technology**	**BCIT** 4 Semesters **Mech Technology**	**BCIT** 4 Semesters **Manufact. Technology**	**Okanagan College** 4 Semesters **Civil Technology**	**Okanagan College** 4 Semesters **Mech Technology**	**TRU** 6 Semesters **Engineering Design**
1st Semester	1st Semester	1st Semester	1st Semester	1st Semester	1st Semester	1st Semester	1st Semester
CIVL 131 Grahpical Communications 1	**ENGL 170** Tech Profess Communications 1	**BLDG 1000** Architectural Drafting	**CHSC 1105** Engineerng Materials 1	**CHSC 1105** Engineerng Materials 1			**ARET 110** Graphical Commnunications
CIVL 151 Surveying 1	**ENGR 151M** Engineering Drawing 1 - 2D CAD	**BLDG 1050** Construction Materials/Processes 1	**COMM 1169** Technical Communication 1	**COMM 1169** Technical Communication 1	**CIEN 131** Draftng 1	**MECH 131** Drafting 1	
CIVL 192 Statics	**MATH 185** Technical Math 1	**BLDG 1200** Building Construction 1	**MATH 1491** Basic Tech Math for Mechanical	**MATH 1491** Basic Tech Math for Mechanical	**CIEN 132** Construction Surveying 1	**MECH 133** Materials Technology	**ARET 111** Computer Aided Design & Drafting
ENGL 170 Tech Profess Communications 1	**MECH 161A** Manufacturing Processes 1	**BLDG 1405** Architectural CAD 1	**MECH 1100** Engineering Graphics 1	**MECH 1100** Engineering Graphics 1	**CIEN 133** Concrete Technology	**MECH 134** Statics	**ARET 1112** Introduction to Architecture
MATH 185 Technical Math 1	**MECH 161B** Manufacturing Processes 2	**BLDG 1600** Structures 1 for Building	**MECH 1105** CAD Graphics	**MECH 1105** CAD Graphics	**CIEN 134** Statics & Strength of Materials 1	**MECH 136** Application of Engineering Principles	**ARET 120** Construction Materials & Documents
PHYS 191 Physics 1 Civil / Mechanical	**PHYS 191** Physics 1 Civil / Mechanical	**COMM 1140** Technical Communication for Building	**MECH 1120** Energy Systems	**MECH 1120** Energy Systems	**CIEN 136** Application of Engineering Principles	**MECH 139** Mechanical Fabrication	**ARET 130** Architectural Fundamentals
		MATH 1401 Technical Math for Arch and Bldg Engineering	**MECH 1141** Engineering Mechanics 1	**MECH 1141** Engineering Mechanics 1	**COSC 115** Microcomputer Orientation	**CMNS 133** Technical Communications I	
		PHYS 1140 Applied Physics for Building 1	**MECH 1171** Computer Applications and Programming	**MECH 1171** Computer Applications and Programming	**CMNS 132** Tech Comm for Engineering Technolgy	**MATH 135** Math for Mech Engineering Technology	
					MATH 113 Math for Civil Engineering		
2nd Semester	2nd Semester	2nd Semester	2nd Semester	2nd Semester	2nd Semester	2nd Semester	2nd Semester
CIVL 132 Grahpical Communications 2	**CHEM 160** Chemistry and Materials	**BLDG 2000** Planning	**CHSC 2205** Engineering Materials 2	**CHSC 2205** Engineering Materials 2	**CIEN 141** Drafting II	**MECH 142** Drafting II	**ARET 140** Civil Subdivision
CIVL 152 Surveying 2	**MECH 153** Mechanical Components & 3D CAD	**BLDG 2050** Construction Materials/Processes 2	**MATH 2491** Calculus for Mechanical	**MATH 2491** Calculus for Mechanical	**CIEN 142** Construction Surveying II	**MECH 144** Dynamics	**ARET 141** Civil Surveying
CIVL 193 Strengths of Materials 1	**MECH 159** Mechanical Control Programming	**BLDG 2100** Introduction to Building Science	**MECH 1210** Manufacturing Processes	**MECH 1210** Manufacturing Processes	**CIEN 143** Highways Materials Testing 1	**MECH 146** Fluid Mechanics	**ARET 150** Building Electrical Code
CIVL 180 Tech Profess Communications 2	**MECH 173** Statics and Strength of Materials	**BLDG 2150** Intro to Economics for Building	**MECH 2201** Engineering Graphics 2	**MECH 2201** Engineering Graphics 2	**CIEN 144** Statics and Strength of Materials II	**MECH 147** Strength of Materials	**ARET 151** Building Lighting Design
MATH 187 Technical Math 2	**PHYS 192** Physics 2 Civil / Mechanical	**BLDG 2200** Building Construction 2	**MECH 2240** Strength of Materials	**MECH 2240** Strength of Materials	**CIEN 145** Elementary Hydraulics	**MECH 148** Manufacturing Processes	**ARET 210** Advanced CADD
PHYS 192 Physics 2 Civil / Mechanical		**BLDG 2300** Construction Estimating 1	**MECH 2241** Engineering Mechanics 2	**MECH 2241** Engineering Mechanics 2	**CIEN 147** Software App. For Engineering Technology	**MECH 149** Manufacturing Applications	
		BLDG 2405 Architectural CAD 2	**PHYS 2149** Physics for Mechancial	**PHYS 2149** Physics for Mechancial	**CIEN 148** Structural Design	**MATH 145** Math for Mech Engineering II	
		BLDG 2450 Computer Applications for Building			**MATH 123** Calculus for Civil Engineering	**MECH 152** Welding	
		BLDG 2600 Structures 2 for Building			**CIEN 152** Construction survey III	**MECH 101** Coop Work Term I	
		COMM 2255 Technical Communication for Building			**CIEN 101** Coop Work Term I	**MECH 102** Coop Work Term II	
		MATH 2402 Analytic Geometry and Stats for			**CIEN 102** Coop Work Term II		
		PHYS 2148 Applied Physics for Building 2					
3rd Semester	3rd Semester	3rd Semester	3rd Semester	3rd Semester	3rd Semester	3rd Semester	3rd Semester
CIVL 133 Graphical Communications 3	**ELEX 247** Electronics for Mechancial 1	**BLDG 3200** Building Construction 3	**CDCM 3300** Parametric Modeling	**ELEX 2845** Electrical Equipment	**CIEN 231** Water Shed Management	**MECH 232** Machine Design	**ARET 211** LISP Programming for CADD
CIVL 146 Highway Design	**ENGR 177** Fluid Dynamics 1	**BLDG 3251** Construction Contracts	**ELEX 2845** Electrical Equipment	**MANU 3310** Material Removal Processes	**CIEN 232** Construction Estimating	**MECH 233** Technology Management and Quality	**ARET 220** Construction Processes & Estimating
CIVL 153 Surveying 3	**MATH 187** Technical Math 2	**BLDG 3300** Construction Estimating 2	**MATH 3495** Calculus for Engineers	**MANU 3312** Computer Aided Manufacturing	**CIEN 233** Engineering Soils	**MECH 234** Thermodynamcs	**ARET 221** Construction Management
CIVL 194 Strengths of Materials 2	**MECH 175** Dynamics	**BLDG 3350** Construction Specifications	**MECH 2350** Fluid Power 1	**MANU 3314** Tool Design	**CIEN 234** Structural Design in Wood	**MECH 235** Hydraulics and Pnuematics	**ARET 222** Applied Research Project
ENGR 177 Fluid Dynamics 1	**MECH 183** Computer-Aided-Manufacturing CAM	**BLDG 3600** Structures 3 for Buildings	**MECH 3320** Thermal Engineering 1	**MANU 3317** Plastics Manufacturing	**CIEN 235** Municipal Design	**MECH 237** Computer Applications I	**ARET 230** Building Code Part 3 & 5

MATH 189 Technical Math 3		**BLDG 1810** Electrical Systems	**MECH 3325** Fluid Mechanics	**MECH 2350** Fluid Power 1	**CIEN 236** Highway Materials Testing II	**MECH 239** Automation	
		MSYS 3880 Heating, Ventillating and Air Cond.	**MECH 3340** Machine Design 1	**OPMT 1411** Production Engineering Management	**CIEN 237** Design of Urban Road Systems	**ELEN 236** Electronic Technology I	
		BLDG 3000 Architectural Technology 1	**MECH 3345** Computer Aided Engineering (CAE)		**CIEN 142** Tech Comm II for Engineering Technology	**MECH 253** Advanced Quality	
		BLDG 3050 Economics - Construct. Operations 1			**CIEN 103** Coop Work Term III	**MECH 103** Coop Work Term III	
		BLDG 3100 Building Science 1					
4th Semester	4th Semester	4th Semester	4th Semester	4th Semester	4th Semester	4th Semester	4th Semester
CIVL 255 Urban Services	**ELEX 248** Electronics for Mechancial 2	**BLDG 4200** Building Construction 4	**COMM 2269** Technical Communication 2	**COMM 2269** Technical Communications 2	**CIEN 240** Project	**MECH 240** Project	**ARET 240** Transportation Planning
CIVL 264 Solis 2	**MATH 189** Technical Math 3	**BLDG 4303** Construction Estimating 3	**ELEX 2835** Instrument for Mechanical Systems	**MANU 3410** Metrology	**CIEN 241** Project Management	**CMNS 144** Technical Communications II	**ARET 250** Plumbing / Gas
CIVL 276 Hydrology	**MECH 255** Mechanics of Machines	**BLDG 4400** Computer Appl. In Construct. Management	**MECH 0460** Ethics for Technologists	**MANU 4410** Material Joining Processes	**CIEN 242** Steel Detailing and Estimating	**MECH 243** Production, Planning, & Oper.	**ARET 260** Wood Structures
CIVL 279 Fluid Dynamics 2	**MECH 261** Thermodynamics 1	**BLDG 4500** Codes and Regulations	**MECH 3445** Theory of Mechanisms	**MANU 4412** Production Planning	**CIEN 244** Structural Design in Concrete	**MECH 244** Applied Thermodynamics and HVAC	**EDDT 225** Building Design
CIVL 280 Environmental Engineering	**MECH 286** Introduction to Control Systems	**BLDG 4505** Building Acoustics	**MECH 3451** Fluid Power 2	**MANU 4450** CNC Lathe Programming	**CIEN 246** Pavements	**MECH 247** Computer Applications III	**EDDT 250** Structural Analysis
CIVL 293 Structural Design 1		**BLDG 4506** Systems Synthesis	**MECH 3460** Engineering Economics	**MANU 4490** Manufacturing Projects	**CIEN 248** Construction Law	**MECH 249** Robotics and CIM	
5th Semester	5th Semester						5th Semester
CIVL 240 Managing Construction Projects	**MECH 187** Quality Assurance	**BLDG 4600** Structures 4 for Buildings	**MECH 4421** Thermal Engineering 2	**MATH 4491** Statistical Quality Control	**CIEN 249** Computer Applications for Civil Engineer.	**ELEN 246** Electronic Technology II	**EDDT 252** Fluid Mechanics and Statics
CIVL 258 Infrastructure Rehabilitiation	**MECH 252** Pneumatics and Hydraulics	**ELEX 2805** Illumination	**MECH 4440** Machine Design 2	**MECH 0460** Ethics for Technologists			**EDDT 260** Advanced Architectural Design
CIVL 265 Soils 3	**MECH 257** Mechanics of Vibrations	**MSYS 3980** Plumbing	**MECH 4450** Mechanical Control Systems	**MECH 3440** Mechanical Equipment			**EDDT 280** HVAC
Civl 282 Water Treatment	**MECH 271** Strength of Materials 2	**SURV 1120** Surveying for Building	**MECH 4491** Design Projects	**MECH 3451** Fluid Power 2			**EDDT 281** Thermodynamics for Buildings
CIVL 298 Structural Design Project	**MECH 275** Environmental Engineering	**Groups of Electives:**	**MECH 4495** Engineering Design	**MECH 4450** Mechanical Control Systems			**EDDT 296** Structural Steel
ENGR 253A Technical Report		**BLDG 4000** Architectural Technology 3	**and**	**OPMT 1182** Total Quality Management			**EDDT 297** Structural Wood
ENGR 278 Engineering Economics		**BLDG 4405** Computer Graphics for Architectural	**MECH 3452** Fluid Power 3				**EDDT 298** Structural Concrete
6th Semester	6th Semester	**or**	**or**				
CIVL 247 Highway Design Project	**ENGL 273** Tech and Profess Communications 3	**BLDG 4050** Economics - Construct. Operations 2	**MATH 4495** Linear Algetbra & Vector Calculus				
CIVL 257 Urban Planning	**MECH 284** Robotics and Animation	**BLDG 4305** Computer Based Estimating	**or**				
CIVL 268 Construction Materials	**MECH 295** Project Planning and Design	**or**	**MATH 4496** Applied Differential Equations				
CIVL 283 Sewage Treatment	**MECH 262** Thermodynamics 2	**BLDG 4100** Building Science 2					
CIVL 297 Structural Design 2	**MECH 266** Machine Design	**BLDG 4305 Computer Based Estimating**					
ENGR 253B Technical Report 2	**MECH 273** Advanced Strength of Materials						
	MECH 277 Fluid Dynamics 2						
	MECH 299 Engineering and Society						

APPENDIX I

CADD Memorandum of Understanding (MOU) with SFU Mechatronics Engineering

Credential: Course Substitutions

NOTES

In 2014 the CADD program requested that the SFU Mechatronics Engineering program revise this MOU to reflect current course numbers, but it was denied at their Curriculum Committee.

The MOU is still being applied in 2015 even though course numbers do not exactly match.

The KPU Records department has accepted course substitutions in order for SFU transfer students to get their CADD Mechanical Certificate

Memorandum of Understanding

between:
Mechatronic Systems Engineering,
School of Engineering Science, Simon Fraser University
and
Computer Aided Design and Drafting,
Faculty of Trades and Technology, Kwantlen Polytechnic University

October 2008

SFU Mechatronic Systems Engineering Kwantlen Polytechnic University Drafting/CADD Technologies

This is a memorandum of understanding between the Mechatronic Systems Engineering (MSE) program at the Surrey campus of Simon Fraser University (hereafter `SFU') and the Computer Aided Design and Drafting (CADD) Technologies program at Kwantlen Polytechnic University (hereafter `Kwantlen').

- *Whereas* Kwantlen has an established reputation for excellence in CADD instruction, and
- *whereas* MSE offers a program of instruction in mechatronics systems engineering leading to the degree of Bachelor of Applied Sciences

the two parties aforementioned do hereby agree that:

MSE will:

a) Guarantee admittance to the first year of the MSE program for any student graduating with a Kwantlen Certificate, or Diploma, and a Grade Point Average of 2.5 or higher for the respective program

b) Kwantlen students admitted to MSE with a CADD Certificate or Diploma with credit in courses CADD 1150 and CMNS 1115 will be given a waiver for the SFU courses TECH ONE 106 and TECH ONE 101, respectively

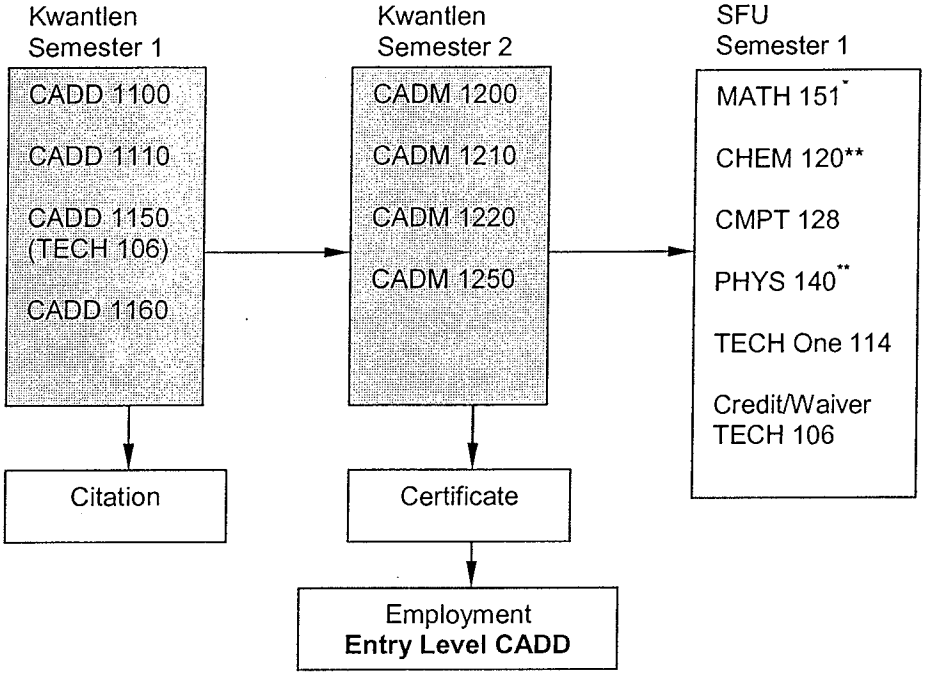
c) Publicize and recommend to students in the MSE program the possibility of completing a summer semester of their MSE degree program in the Kwantlen CADD program, taking the set of courses CADM 1200, 1210, 1220 and 1250 and thereby earning a Certificate from Kwantlen, subject to minimum student enrolment of 17 from SFU, Kwantlen, and other sources being met.

And Kwantlen will:

- Publicize and recommend the possibility of transferring to the SFU Mechatronics Systems Engineering program to students graduating from Kwantlen's CADD program with a Certificate or a Diploma.
- Assign Block Transfer credit (CADD 1XXX) in lieu of CADD Core prerequisites CADD 1100, 1110, 1150 & 1160 to allow advanced standing into the Manufacturing Specialty for those SFU students who have completed the first two semesters of the MSE program in good academic standing to register for the set of courses CADM 1200, 1210, 1220 and 1250, and thereby earn a Certificate from Kwantlen.

Scenario 1 Entry to SFU with a Kwantlen Certificate

- Kwantlen Certificate graduates with a GPA of 2.5 or greater can register as a MSE student and proceed to first year (Tech One) at SFU with a waiver for SFU TECH ONE 106



Notes:
* Kwantlen students whose secondary school Math 12 score is below B need to take the prerequisite course SFU MATH 100 before registering MATH 151
** Kwantlen students whose secondary school Physics 12 score is below C- need to take the prerequisite course SFU PHYS 100 before registering PHYS 140. Kwantlen students whose high school Chemistry 12 score is below C- need to take the prerequisite course SFU CHEM 110 (or 101) or CHEM 111 before registering CHEM 120.

Advantages

Kwantlen Students:
- Employable skills and strong foundation in Manufacturing Design & Drafting
- Good placement in future Coop semesters
- Lighter load in Mechatronics Systems Engineering

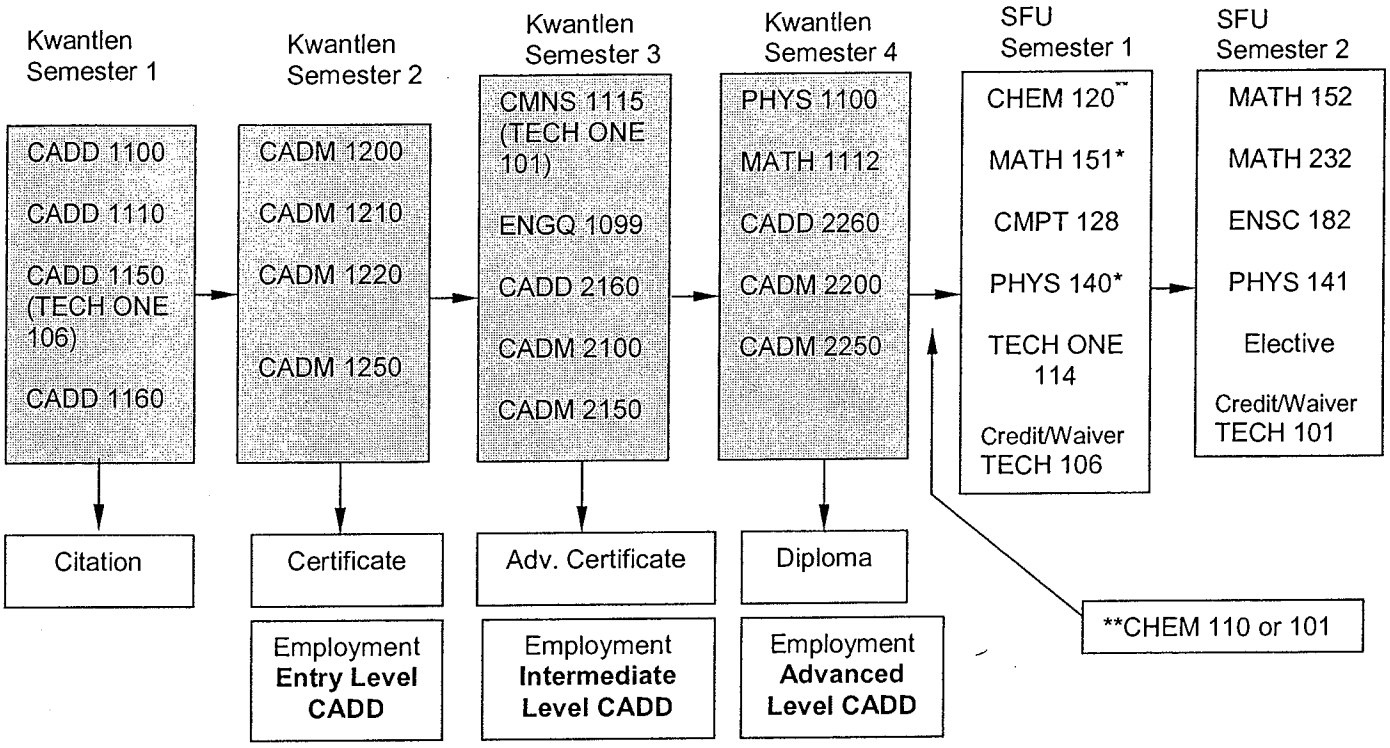
Kwantlen:
- Ability to promote continued education opportunities in recruitment of high school students
- Increased ability to attract high school students with Science/Math background
- Recognition from receiving institute (SFU)

SFU:
- Kwantlen students will already have two semesters of experience in a university setting
- Increase the number of students who will successfully complete first year
- Kwantlen students will have skills that will greatly benefit Coop employers

SFU Mechatronic Systems Engineering | Kwantlen Polytechnic University Drafting/CADD Technologies

Scenario 2 Entry to SFU with a Kwantlen Diploma

- Kwantlen diploma graduates with a GPA of 2.5 or greater can register as a MSE student and proceed to first year (Tech One) at SFU with a waiver for SFU TECH ONE 106 & TECH ONE 101



Note:
* Kwantlen Math 1112 is equivalent to SFU MATH 100; Kwantlen PHYS 1100 is equivalent to SFU PHYS 100. Kwantlen students who have completed Semester 4 can directly register SFU MATH 151 and PHYS 141.
** Kwantlen students whose secondary school Chemistry 12 score is below C- need to take the prerequisite course SFU CHEM 110 (or 101) or CHEM 111 before registering CHEM 120.

Advantages

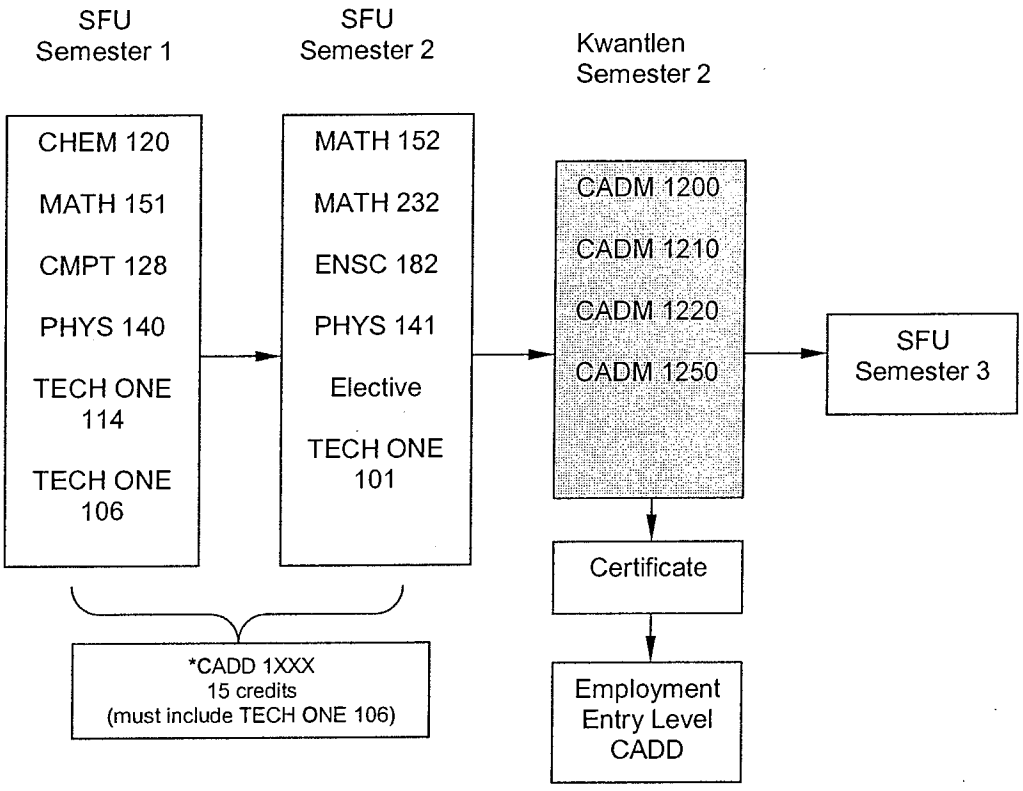
Kwantlen Students:
- Employable skills and strong foundation in Manufacturing Design & Drafting
- Good placement in future Coop semesters
- Lighter load in Mechatronics Systems Engineering

Kwantlen:
- Ability to promote continued education opportunities in recruitment of high school students
- Increased ability to attract high school students with Science/Math background
- Recognition from receiving institute (SFU)
- Student retention while students earn Diploma and SFU prerequisites

SFU:
- Kwantlen students will already have four semesters of experience in a university setting
- Increase the number of students who will successfully complete first year
- Kwantlen students will have skills that will greatly benefit Coop employers

Scenario 3 SFU first year students earn Kwantlen Certificate during their first optional CO-OP semester

- SFU first year students in good academic standing* can proceed to Kwantlen second semester and receive Kwantlen certificate upon successful completion of the semester



Note: * SFU students must complete 15 Block Transfer credits which can be any combination of courses from SFU semester one and two, but must include TECH ONE 106. This bundle of courses will appear on the Kwantlen Transcript as CADD 1XXX. These15 transfer credits are required in lieu of the Kwantlen CADD semester 1 (Core).

Advantages

SFU Students:

- Employable skills and strong foundation in Manufacturing Design & Drafting
- Good placement in future Coop semesters
- Increased understanding of manufacturing from hands-on experience
- Improved skills for ensuing design courses

Kwantlen:

- Ability to promote the benefit of the Certificate to Engineering students
- Increased ability to attract high school students with Science/Math background

SFU:

- Access to Kwantlen's Computer labs, Manufacturing labs, CNC software and equipment
- Practical expertise of Kwantlen instructors

SFU Mechatronic Systems Engineering | Kwantlen POLYTECHNIC UNIVERSITY Drafting/CADD Technologies

Agreed to this 30th day of October 2008, by

Dr. Farid Golnaraghi, Associate Director, Engineering Science
Simon Fraser University

Dana Goedbloed, Dean, faculty of Trades and Technology
Kwantlen Polytechnic University

APPENDIX J

CADD Memorandum of Understanding (MOU) with KPU Engineering

NOTES
Pending as of Aril 27 2015

KWANTLEN POLYTECHNIC UNIVERSITY
FACULTY OF SCIENCE & HORTICULTURE

SURREY CAMPUS

12666 – 72ND Ave.
Surrey, BC Canada V3W 2M8

MEMORANDUM

TO: Faculty of Trades and Technology Faculty Council
Faculty of Science and Horticulture Curriculum Committee

CC:

FROM: Michael Poon, Department of Physics and Engineering

DATE: April 13, 2015

SUBJECT Approved Pathways between the Engineering Certificate Program and the CADD Program

The Engineering and the Computer Aided Design and Drafting (CADD) Technologies programs request approval in establishing the following pathways for students who wish to transfer between these two programs.

Scenario 1: Entry to Engineering with a KPU CADD Diploma

Up to five (5) seats in the Engineering First-Year Certificate program will be held for CADD Diploma graduates. The CADD diploma graduates must formally apply for admission to the Engineering First-Year program and must notify the Engineering Coordinator of their intentions to enter the engineering program. Students admitted to the Engineering Certificate program will have seats reserved for them in all required certificate courses.

Only those students with a CADD program GPA of 2.8 or greater, and meeting all the required course pre-requisites – English 12 (B) or equivalent; Chemistry 12 (C+) or equivalent; Principles of Math 12 (B) or equivalent; and Principles of Physics 12 (C) or equivalent – will be eligible for the reserved seats. If the number of qualified applicants exceeds the number of reserved seats, selection will be based on a competitive GPA.

Scenario 2: APSC 1151 Course Substitution

Students with a KPU CADD citation or higher, and a GPA of 2.8 or greater, may request for the following course substitution towards completing the Engineering First-Year Certificate.

CADD Program		**Engineering Program**	
CADD 1150	=	APSC 1151	(course substitution)

Note: The course substitution is only relevant for students wishing to apply for the KPU Engineering Certificate credential. Students wishing to transfer to an engineering-degree granting institution that requires credit for APSC 1151 should either take APSC 1151 or challenge the Prior Learning Assessment (PLA) in order to have APSC 1151 listed on their transcript.

KWANTLEN POLYTECHNIC UNIVERSITY
FACULTY OF SCIENCE & HORTICULTURE

SURREY CAMPUS

12666 – 72ND Ave.
Surrey, BC Canada V3W 2M8

MEMORANDUM

Scenario 2: Entry to CADD Specialty with a KPU Engineering Certificate

Students who graduate with a KPU Engineering Certificate can proceed to one or more CADD Specialty semesters and received a KPU CADD certificate upon successful completion of the CADD program requirements.

Engineering certificate graduates will receive advanced standing for the credits of CADD Core Requirements which include CADD 1100, CADD 1110, CADD 1150 and CADD 1160.

Note: Students who do not graduate form the Engineering certificate program but would like to transfer to a CADD Specialty Program may do so by combining successfully completed courses from the Engineering certificate (except ENGL 1100), and two (2) of which must be APSC 1124 and APSC 1151 (with a minimum of C+ grade). These 15 substitute credits will permit entry into one or more specialties, as well as provide the 15 CADD Core credits required toward the CADD Certificate.

Additional Provisions

CADD graduates not selected for the Engineering Certificate program will be allowed access to the engineering-specific courses – APSC courses, CHEM 1154, MATH 1152 and PHYS 1170 – on a first-come basis with students in the Faculty of Science and Horticulture.

Note: it is highly recommended that CADD graduates intending to complete courses for engineering transfer should meet with an educational advisor to plan their course selections – the engineering destination institutions all have slightly different requirements for transfer into second-year engineering.

APPENDIX K

Alumni Reunion – Funding Report

NOTES
The CADD program received the following funding for the 2014 Alumni Reunion:
KPU Alumni Association: (KPUAA) - $500.00
Sodexo - $1000.00
Coca-Cola - $1500.00 + 250 beverages

Only the KPUAA report is included in this appendix

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Canada V3W 2M8

FOLLOW-UP REPORT FOR KPUAA EVENT SUPPORT

Event Title	**CADD Alumni Gathering**
Date of Event	**Thurs, December 4 2014**

1. **Did your event take place on the originally anticipated date? If not, please describe why:**

Yes

2. **What the originally anticipated number of guests was as indicated on your application?**

No, it was less by about 30% (Alumni). The number of students / industry was as anticipated

3. **Did your event attract the anticipated amount of guests? If not, please describe your thoughts on the results.**

This is the first time that we have contacted Alumni on a mass scale. Although I sent out 800 emails and invitations, we did not have up to date contact information for many of those folks. But the people who did reply and attend will start telling the people from their cohorts. I have asked everyone who attended to bring 2 people from their class next year. This would triple our attendance.
The whole purpose of the event was to START getting, and keeping, in touch with Alumni. From that perspective, it was a great success. Everyone who attended really enjoyed themselves, and was happy to see the CADD faculty, and friends from the past.

4. **What was the main highlight of your event?**

The main highlight was getting everyone in one room at one time to see what a vibrant community they are a part of. Students, alumni and industry seldom have opportunity to get together, but we are all connected by the common thread of the KPU CADD Program. This event certainly delivered on that score. There will be lots of networking opportunities as a result of this awakening to stakeholder of the KPU CADD program.

5. **Will you hold this event again? Why or why not?**

Yes. This was a great start. Word is starting to spread, and I believe the momentum will build from here.

6. **If you plan to hold the event again, what elements will be improved for next time?**

We will change the location if possible. I have already requested the KPU Surrey Campus Conference Center for Nov 26 2015.
Although the Cloverdale Atrium was suitable, we were full to maximum and there were issues with the audio visual. It was hard to place a screen and data projector among the crowd in the way that all could see and hear.
We will also send out frequent reminders (every 3 months) as we lead up to the event.

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7. If your event has a fundraising component, please indicate the amount of funds that were raised, from what sources, and for what purpose:

This was not a fund-raising event, but we did collect a large box of food for the Food Bank

8. Please describe how coke was recognized pre-event, during your event and/or post-event.

Coca Cola was recognized by a large poster board (3 feet x 4 feet) mounted on an easel
Coca Cola was recognized on our printed programs (placemats) and also during the Welcome Address from the Dean of Trades and Technology and in the PowerPoint presentation

Coca Cola will be recognized post-event in follow up emails to attendees, and also to the same invitees, telling them of the success of this year's event, and to Save the Date for next year's event (Nov 26 2015)

9. Please list and describe other avenues of monetary of in-kind support that you received to implement your event.

$1500.00 and 250 bottled beverages from Coca Bottling Company,
$1000.00 Sodexo
$750.00 from CADD Program Operating Budget

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Canada V3W 2M8

Additional comments or notes:

We are very grateful to the KPUAA for their contribution to the success of this event. We could not possibly have put this event on without this funding.
This funding allowed us to put on a very nice buffet for the attendees, and it made them feel recognized and appreciated. It also enabled us to provide gift baskets of KPU items as door prizes. They looked very nice as center pieces on the tables, and it was lots of fun giving them away.
The CADD 2160 students did a great job of helping to put this event together, and they learned a lot about planning and details.
I have included some photos to give an idea of what a success this event was. We are already looking forward to a larger event next year.

Above: general view of the event

Left: CADD 2160 students who helped organize the event as part of a class project

APPENDIX L

CADD Admissions Procedures

NOTES

CADD Technologies - Admissions Protocol

November 6 2015

General:

- The first semester of CADD courses are offered as a mandatory 4 course Cohort, and is referred to as The CORE. The course composition of the CORE includes: CADD-1100, CADD-1110, CADD-1150 and CADD-1160
- There are three intakes of CORE each year of 20 students each, one in each term.
- There is an additional intake of CTC Highschool Partnership students into the CORE that require part time course offerings of CADD-1150 (Fall) , CADD-1110 (Spring) and CADD-1160 (Summer). The CADD Dept shall reserve sufficient seats in these courses for the CTC students (normally about 14) with the remaining seats unrestricted.
- CTC students can complete the CORE by writing a Qualifying Assessment test for CADD-1100. This option is available to CTC students based on their existing enrollment in a High School partnership drafting program.
- Students completing the CORE can continue into one (or more) or three Specialties: Architectural (Fall Semester), Structural (Spring Semester) and Mechanical (Summer Semester).
- Completing the necessary prerequisites will allow students to continue into the Second Year Diploma Level courses.
- There are three Exit opportunities for students:
    - The CORE (15 Credits) – Citation
    - Specialty (30 Credits) – Certificate
        - The Mechanical Specialty will see students graduate with 31 credits
    - The Second Year (60 Credits) – Diploma
        - The Mechanical Specialty will see students graduate with 61 credits

- CADD Dept. credits are Undergraduate

Admission:

- Students enrolled in The CORE shall be classified as CADD_FT
- All Students beyond semester one will be re-coded to CADD_DI, this coding to be updated at the point of admission. CTC students shall remain coded to CADD_FT until they have completed the CTC Partnership Program.
- Seats in The CORE are categorized as selective entry / limited enrollment and restricted to CADD_FT students only until such time as the Department wishes to open up the course selections to non-CADD students or CADD_DI students.
- Completion of the Core is a prerequisite for all other CADD course offerings.
- KPU commits to all new, first semester students that they will be guaranteed a seat in the FIRST semester of CADD, but not in subsequent semesters. If a student fails to complete the CORE Cohort in their first semester they will not have priority access to the remaining course(s). Their coding will have been changed to CADD_DI and they shall have to wait until CADD_FT restrictions are lifted on the course(s)they require.
- Admission will collect a commitment fee up front ONLY for new, first semester CADD applicants (not for returning CADD Students).
- Admissions will enforce a deadline each term by which time admitted students must register for their CORE courses
- Students not registering by the specified deadline will be coded as abandoned, and Admissions will offer the seat to the next person on the waitlist. The waitlist should be exhausted before the program restrictions are opened.
- Admissions is to define for each semester the deadline by which students who are offered admission to CORE must pay their commitment fee and register.
- All students that are placed on a waitlist for CORE shall be notified by letter of their status with a specific recommendation regarding course application into the following term. The wording to be similar to: "*Since KPU is unable*

at this time to guarantee you a seat in the course(s)you have selected this term, we recommend that you apply at the earliest opportunity for these same courses in the following term for this program. Current KPU policy does not transfer this current term's waitlist into the next term and you will not be provided with priority access to these courses automatically. If your admission to this term is successful, your application to the following term will be automatically removed. If you have any questions please contact your admissions advisor or the CADD Dept. Chair at CADD@KPU.ca."

- Admissions will email notice to the CADD Department Chair when the CORE waitlist has been exhausted with seats remaining available so that the decision to open restrictions can be timely.
- Registration into courses in all other semesters are according to prerequisites only and do not follow a Cohort model.
- Course Outlines are to be maintained to indicate correct course prerequisites.
- When submitting schedules for timetabling, the CADD Dept will continue to indicate the correct restrictions for each course according to this Protocol, and if, or when, program restrictions should be lifted. The "when" in this case may be a condition and not a specific date.

From: Daryl Massey
Sent: Wednesday, November 12, 2014 11:41 AM
To: Michael Bluhm
Cc: Cindy Bilow; Teri Bosch; Denis Seremba
Subject: RE: re: CADD admissions procedures

Sounds great, thanks for all your help.

Daryl Massey

Daryl Massey
Kwantlen Polytechnic University
CADD Technologies Department Chair / Instructor

t: 604-598-6123 604-598-6123
e:daryl.massey@kpu.ca

From: Michael Bluhm
Sent: Wednesday, November 12, 2014 11:23 AM
To: Daryl Massey
Cc: Cindy Bilow; Teri Bosch; Denis Seremba
Subject: RE: re: CADD admissions procedures

Hi Daryl,

Since these are operational procedures, no need for any other approval other than all of us agreeing. With respect to keeping them up-to-date, I would suggest that Denis be your main point of contact here, and you let him know if and when you have changes to consider, and vice-versa. In addition, we should meet once per year, or maybe twice, to review and renew the document. A meeting sometime before September will be good, given the various transitions-related changes afoot.

Best,
Mike

From: Daryl Massey
Sent: Wednesday, November 12, 2014 11:02 AM
To: Michael Bluhm
Cc: Cindy Bilow; Teri Bosch; Denis Seremba
Subject: RE: re: CADD admissions procedures

Hello:

When the document is approved do we need to give some thought on a Protocol for it's use and maintenance? If it's main purpose is to provide current Program info to our Admissions contact, and in

return also to our Dept., should there be a method to providing any updates/changes etc? I am thinking ahead to changes that seem to be coming for Sept 2015, or any others that my arise from time to time as changes do.

Thank you for your time and efforts,

Daryl Massey

Daryl Massey
Kwantlen Polytechnic University
CADD Technologies Department Chair / Instructor

t: 604-598-6123 604-598-6123
e:daryl.massey@kpu.ca

From: Michael Bluhm
Sent: Friday, November 07, 2014 11:05 AM
To: Daryl Massey
Cc: Cindy Bilow; Teri Bosch; Denis Seremba
Subject: RE: re: CADD admissions procedures

Hi Daryl,

Cindy and Teri have had a look and have no concerns with the procedures as you've outlined.

I've also copied our new Manager of Admissions and Transfer, Denis Seremba for a virtual introduction.

Thanks Daryl,
Mike

From: Daryl Massey
Sent: Thursday, November 06, 2014 11:30 AM
To: Michael Bluhm
Subject: RE: re: CADD admissions procedures

Hello:

Running through my records today I discovered to my surprise (horror) that I had not forwarded to you the Admissions Protocol Letter Draft we had prepared a few weeks back. With my apologies for its' lateness, please find it attached to this email.

Thank you,

Daryl Massey

Daryl Massey
Kwantlen Polytechnic University
CADD Technologies Department Chair / Instructor

t: 604-598-6123 604-598-6123
e:daryl.massey@kpu.ca

From: Michael Bluhm
Sent: Tuesday, September 09, 2014 12:37 PM
To: Daryl Massey
Subject: RE: re: CADD admissions procedures

Sounds good, Daryl.
Thanks,
Mike

From: Daryl Massey
Sent: Tuesday, September 09, 2014 9:28 AM
To: Michael Bluhm
Subject: RE: re: CADD admissions procedures

Hello:

This sounds like a good approach. I'm will meet with Joanne and Christina to run through things and will create a draft after that. I would estimate that I could have something for you within 10 days. I think the meeting went very well, I certainly feel much better informed. I'm looking forward to working with you.

Thank you,

Daryl Massey

Daryl Massey
Kwantlen Polytechnic University
CADD Technologies Department Chair / Instructor

t: 604-598-6123 604-598-6123
e:daryl.massey@kpu.ca

From: Michael Bluhm
Sent: Monday, September 08, 2014 4:04 PM

To: Daryl Massey
Subject: re: CADD admissions procedures

Hello Daryl,

I'm following up from our meeting last week where you had brought to my attention a procedures document of sorts – a recap of a meeting from 2012 with Zena Mitchell. You had mentioned an interest in updating these procedures. I assume you have an electronic version we could work off of? I'm wondering if you would like to take a first crack at revising anything that you think is out-of-date, then I could review the document with the Admissions Coordinators on my team and have them comment on what their current practices are, and we'll work to reconcile any discrepancies. Does this sound like an ok approach?

Best regards,
Mike

Michael Bluhm
Acting Associate Registrar, Admissions, Graduation & Enrolment Services
Kwantlen Polytechnic University

t 604.599.3139 604.599.3139 **f** 604.599.2086 **e** michael.bluhm@kpu.ca
www.kpu.ca

APPENDIX M

CADD Strategic Planning

CADD Vision Statement 2007

CADD Marketing Plan 2007

CADD Strategic Plan 2008

DRAFTING TECHNOLOGIES VISION STATEMENT
September 2007

- We are the premier training center for a variety of Design/Drafting disciplines
- We utilize and apply the most up-to-date Graphics and Communications software
- We meet and set Industry standards
- We attract students from a wide range of backgrounds and prepare them for the program through a Common Core that is available through a selection of delivery modes
- We have partnerships with High Schools to give students Advanced Placement and preference in the program
- We have solid links to workplace through effective Industry partnerships
- We offer One-year certificate, One-year Technician and Two-year Technology programs
- We provide CAD and blueprint reading instruction to other programs in the college

Competitive Advantages

- Premier CADD training
- Leading edge software
- State of the art classrooms
- Experienced and effective instructors
- Active Program Advisory Committees (PAC)
- Excellent secondary school partnership (CTC)

Drafting/CADD Technologies
STRATEGIC PLAN

March 16, 2007

Ten Step Plan - The simple way to keep your program on track

You don't have to kill a tree or shut down the office for a week to create a successful strategic plan. In fact, you can create a successful plan for your business in just one day. It doesn't have to be an overwhelming or a monumental task. It doesn't have to be perfect or fancy. Just grab a few key people in your organization, turn off the phones and let's get started.

Step One – Be the best.
The result of a well-developed and executed strategic plan is to develop a competitive advantage. Just what is a competitive advantage? Business lingo aside, it is simply the answer to: What can your company potentially do better than any other company?

Understanding your competitive advantage is critical. It is the reason you are in business. It is what you do best that draws customers to buy your product/service instead of your competitor's.

Extremely successful companies deliberately make choices to be unique and different in activities that they are really, really good at and they focus all of their energy in these areas. You may decide to incorporate your competitive advantage into your mission and/or vision statements.

Kwantlen Drafting/CADD Technologies – Competitive Advantages

- Premier CADD training
- Leading edge software
- State of the art classrooms
- Experienced and effective instructors
- Active Program Advisory Committees (PAC)
- Excellent secondary school partnership (CTC)
- _____
- _____
  _____
- _____
-

Step Two – State your purpose.

A mission statement is a statement of the company's purpose. It is useful for putting the spotlight on what business a company is presently in and the customer needs it is presently endeavoring to serve. It also serves as a guide for day-to-day operations and as the foundation for future decision-making. To write a mission statement, answer the questions: What is our business? What are we trying to accomplish for our customers? What is our company's reason for existing?

Kwantlen Drafting/CADD Technologies – Mission Statement Questions

What is our business? _____

What are we trying to accomplish for our customers? _____

_____

What is our Program's reason for existing? _____

_____

From the above answers, we will write our Mission Statement:

_____

_____

_____

_____

_____

NOTE: Although Mission Statements help to keep us on track regarding what we DO and HOW we do it, a slogan is actually more useful for helping to build a particular image. (This is called "branding")

Example: Kwantlen Drafting/CADD Technologies
"Premier CADD Training"

Other possible slogans:

_____

_____

_____

_____

Step Three – Visualize the future.

A strategic vision is the image of a company's future – the direction it is headed, the customer focus it should have, the market position it should try to occupy, the business activities to be pursued, and the capabilities it plans to develop. Forming a strategic vision should delineate what kind of enterprise the company is trying to become and infuse the organization with a sense of purposeful action. Think big! To write a vision statement, answer this question: What will our business look like in 5 to ten years from now?

DRAFTING TECHNOLOGIES VISION STATEMENT
September 2002

- We are the premier training center for a variety of Design/Drafting disciplines
- We utilize and apply the most up-to-date Graphics and Communications software
- We meet and set Industry standards
- We attract students from a wide range of backgrounds and prepare them for the program through a Common Core that is available through a selection of delivery modes
- We have partnerships with High Schools to give students Advanced Placement and preference in the program
- We have solid links to workplace through effective Industry partnerships
- We offer One-year certificate, One-year Technician and Two-year Technology programs
- We provide CAD and blueprint reading instruction to other programs in the college

NOTE: The Vision Statement above was written almost 5 years ago and given to the Dean at a Trades/Technology Divisional meeting on Sept 5 2002.

It is interesting to review it now and see how many goals we have achieved.

Statements for an UPDATED Vision Statement

Step Four – Take an inventory.
The SWOT (Strengths, Weaknesses, Opportunities, Threats) analysis helps you look critically at your organization. It is a tool to help produce a good fit between a company's strengths and its opportunities.

Assess your strengths and weaknesses by answering these questions:

What do we do best?

_____

_____

What do we not do best?

_____

_____

What are our program resources – assets, intellectual property, and people?

_____

_____

_____

What are our program capabilities (functions)?

_____

_____

_____

Assess your opportunities and threats by answering these questions:

What is happening externally that will affect our program?

_____

_____

_____

Continued on next page…

What are the strengths and weaknesses of each competitor?

BCIT

Strengths _____

Weaknesses _____

VCC

Strengths _____

Weaknesses _____

UCFV

Strengths _____

Weaknesses _____

North Island College (NIC)

Strengths _____

Weaknesses _____

Thompson River University (TRU)

Strengths _____

Weaknesses _____

Camosun

Strengths _____

Weaknesses _____

What are the driving forces behind sales (CADD training) trends?

_____

_____

Continued on next page…

What are important and potentially important markets?

_____

_____

What is happening in the world that might affect our program?

_____

_____

_____

Step Five – Profile your customers.
If you want to move your company from being successful to wildly profitable, you need to meet your customers' needs and wants better than your competitors do.

Develop a customer profile by answering:

Who are our customers?

- Secondary School Graduates
- Vocational Rehabilitation Clients
    - WCB
    - ICBC
    - Other _____
- Professionals wanting CADD upgrading
    - Architects
    - Engineers
    - Technologists / Designers
    - Previous graduates
    - Professional immigrants to Canada
    - Other _____
- Employers
    - Architectural
    - Civil
    - Electrical
    - Industrial / Mechanical
    - Manufacturing
    - Structural
    - Other _____

The 3 questions below will be answered on the following pages for each customer group:

1. What are our customers needs, motivations, and characteristics?

2. How do we uniquely provide value to our customers?

3. What should we improve to grow our customer base?

Secondary School graduates

What are our customers needs, motivations, and characteristics?

_____

_____

_____

_____

_____

How do we uniquely provide value to our customers?

_____

_____

_____

_____

_____

What should we improve to grow our customer base?

_____

_____

_____

_____

_____

_____

_____

_____

_____

Vocational Rehabilitation Clients

What are our customers needs, motivations, and characteristics?

How do we uniquely provide value to our customers?

What should we improve to grow our customer base?

Professionals wanting CADD upgrading

What are our customers needs, motivations, and characteristics?

_____

_____

_____

_____

_____

How do we uniquely provide value to our customers?

_____

_____

_____

_____

_____

What should we improve to grow our customer base?

_____

_____

_____

_____

_____

_____

_____

_____

_____

Employers

What are our customers needs, motivations, and characteristics?

_____

_____

_____

_____

_____

How do we uniquely provide value to our customers?

_____

_____

_____

_____

_____

What should we improve to grow our customer base?

_____

_____

_____

_____

_____

_____

_____

_____

_____

Step Six – Write your goals and objectives. (now comes the hard part!)

Goals and objectives are like stair steps to your mission and vision. Realistic goals and objectives are developed from the SWOT analysis and customer profile. Objectives set the agenda, are broad, and global in nature. Write two to five objectives that give action to your mission/vision and will take a few years to achieve. Then, develop goals to achieve each objective. Goals should be measurable, quantifiable, and support your objectives. Think about achieving them in a one-year timeframe. Effective goals must state how much of what kind of performance by when is to be accomplished and by whom. Make sure both your goals and objectives build on your strengths; shore up your weaknesses; capitalize on your opportunities; and recognize your threats.

Objective 1
To graduate new Certificate graduates in Architectural, Structural and Industrial - April 2008

Goals (to achieve Objective 1)	**By Whom**	**When**
Have 60 students enrolled in 3 sessions of the Core in September 2007	All	July 15 '07
Have courses prepared for the Core Semester & Specialty semester	All	July 15 '07
Have new course content on Moodle website by September 1 2007	All	Aug 31 '07

Objective 2
To graduate new Diploma graduates in Architectural, Structural and Industrial - April 2009

Goals (to achieve Objective 2)	**By Whom**	**When**
Obtain funding for 3 sessions of second year	Coordinator	Feb 28 '08
Hire contract instructors with expertise in Revit, Inventor, Tecla, etc	Search committee	May 31 2008
Have courses prepared for the Specialty II & Specialty III semesters		
Have new course content on Moodle website by September 1 2008		

Continued on next page…

Objective 3

To _____

Goals	By Whom	When

Objective 4

To _____

Goals	By Whom	When

Objective 5

To _____

Goals	By Whom	When

Step Seven – Assess your resources.
Now that you have completed your goals and objectives, it is time to do a resource assessment. One of the biggest stumbling blocks to all well laid strategic plans is time and money. As with every business, budgets are never big enough to do everything you want to do. **Prioritize key goals by asking:** Do implementing the goals make financial sense? Do you have the human resources to achieve your plan?

Objective 1 Goals:
1. Have 60 students enrolled in 3 sessions of the Core in September 2007

Does this goal make financial sense? _____

Do we have the human resources to achieve this goal? _____

2. Have courses prepared for the Core & Specialty semesters

Does this goal make financial sense? _____

Do we have the human resources to achieve this goal? _____

3. Have new course content on Moodle website by September 1 2007

Does this goal make financial sense? _____

Do we have the human resources to achieve this goal? _____

Objective 2 Goals:
1. Obtain funding for 3 sessions of second year

Does this goal make financial sense? _____

Do we have the human resources to achieve this goal? _____

2. Hire contract instructors with expertise in Revit, Inventor, Tecla, etc

Does this goal make financial sense? _____

Do we have the human resources to achieve this goal? _____

3. Have courses prepared for the Specialty II & Specialty III semesters

Does this goal make financial sense? _____

Do we have the human resources to achieve this goal? _____

4. Have new course content on Moodle website by September 1 2008

Does this goal make financial sense? _____

Do we have the human resources to achieve this goal? _____

Step Eight – Take action.
Tactics set specific actions/action plans that lead to implementing your goals and objectives. Basically write a to-do list for each goal. A quick way to develop your tactics is to answer this question: What roadblocks exist to achieving my goal? Use the answer to develop action items for each goal. Assign responsibilities and deadlines to ensure implementation. A great method to get buy-in from your staff is to assign a goal to each employee. Ask him/her to write the action plan and be responsible for making sure each task is accomplished.

NOTE: the following 3 pages are an EXAMPLE of developing an **Action Plan** for the goals for Objective 1

Objective 1
To graduate new Certificate graduates in Architectural, Structural and Industrial - April 2008

Goal 1 Have 60 students enrolled in 3 sessions of the Core in September 2007

What roadblocks exist to achieving this goal?

_____

_____

Action Items:	**By Whom**	**When**
High School visits	All	May 31 ‘07
Liaison through CTC facilitators	Coordinator	May 31 ‘07
Mail brochures to Vocational Rehab counselors	Coordinator Todd	June 30 ‘07
Send notices to User Groups (VAUS, VAIG)	Coordinator Todd	June 30 ‘07
Hold Open House for Secondary Schools and PAC’s	Coordinator	May 15 ‘07

Action Plan:

_____

_____

_____

_____

_____

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_____

Objective 1
To graduate new Certificate graduates in Architectural, Structural and Industrial - April 2008

Goal 2 Have courses prepared for the Core & Specialty semesters

What roadblocks exist to achieving this goal?

_____

_____

Action Items:	**By Whom**	**When**
Get course outlines approved for Core courses	Coordinator	Completed
Get course outlines approved for Specialty courses	Coordinator	June 30 '07
Gather Curriculum	All	May 31 '07
Work with PAC to obtain updated projects and design standards	All	June 30 '07

Action Plan:

_____

_____

_____

_____

_____

_____

_____

_____

Objective 1
To graduate new Certificate graduates in Architectural, Structural and Industrial - April 2008

Goal 3 Have new course content on Moodle website by September 2007

What roadblocks exist to achieving this goal?

_____

_____

Action Items:	**By Whom**	**When**
All faculty trained on Moodle	All	May 31 '07
Have Moodle site ready for each course	Coordinator	May 31 '07
Upload course content to Moodle site	All	Aug 31 '07

Action Plan:

_____

_____

_____

_____

_____

_____

_____

_____

ACTION PLAN TEMPLATE

Objective # ____

State the Objective: _____

_____

Goal # ___

State the Goal: _____

_____

What roadblocks exist to achieving this goal?

_____

_____

Action Items:	**By Whom**	**When**

Action Plan:

_____

_____

_____

_____

_____

_____

_____

Step Nine – Keep score.
In step six, you wrote goals that were measurable. Put these measurements and targets on a scorecard (in Excel), which acts as an instrument panel guiding your company towards achieving your vision. With the scorecard, you can actively track your progress on a monthly basis.

NOTE: The following is an EXAMPLE of how a scorecard could look for Objective 1

Objective 1
To graduate new Certificate graduates in Architectural, Structural and Industrial - April 2008

Goals (to achieve Objective 1)	**By Whom**	**When**	**Actual Date**
Have 60 students enrolled in 3 sessions of the Core in September 2007	All	July 15 '07	
High School visits	All	May 31 '07	
Liaison through CTC facilitators	Coordinator	May 31 '07	
Mail brochures to Vocational Rehab counselors	Coordinator Todd	June 30 '07	
Send notices to User Groups (VAUS, VAIG)	Coordinator Todd	June 30 '07	
Hold Open House for Secondary Schools and PAC's	Coordinator	May 15 '07	
Have courses prepared for the Core Semester & Specialty semester	All	July 15 '07	
Get course outlines approved for Core courses	Coordinator	Completed	
Get course outlines approved for Specialty courses	Coordinator	June 30 '07	
Gather Curriculum	All	May 31 '07	
Work with PAC to obtain updated projects and design standards	All	June 30 '07	
Have new course content on Moodle website by September 1 2007	All	Aug 31 '07	
All faculty trained on Moodle	All	May 31 '07	
Have Moodle site ready for each course	Coordinator	May 31 '07	
Upload course content to Moodle site	All	Aug 31 '07	

Step Ten – Make strategy a habit.
A leader devoted to the successful implementation of the strategy and plan is key. The plan needs to be supported with people, money, time, systems, and above all communication. Communicate the plan to everyone in your organization. Hold a monthly or quarterly strategy meeting to report on the progress toward achieving the goal. Don't forget to take corrective actions when needed and adapt as the environment changes.

Kwantlen Drafting/CADD - Proposed Strategy Review Meetings:

- May 11 2007
- August 10 2007
- October 12 3007

Conclusion
One last word of advice is that **the Strategic Plan is a living document.**

It does not have to be perfect or 100 percent complete to start using your strategic plan. A business without a plan is like a car without a steering wheel. A rough draft is better than no plan at all.

Let's put your plan on paper so we can look back on 2007 and celebrate our well-earned success.

Happy Planning!

Kwantlen UNIVERSITY COLLEGE

DRAFTING / CADD TECHNOLOGIES

Strategic Goals – January 2008

Short Term Goals:

	Description	Implementation Date
1	Run second year Architectural & Structural	September 2008
2	Implement Co-op program for Certificate graduates	April 2008
3	Run Professional upgrading courses for specialty software	January 2008 & September 2008
4	Re-establish CTC partnership with new Academic model	April 2008
5	Create an additional specialty diploma that leads directly to the third year of BBA	September 2008

Long Term Goals:

	Description	Implementation Date
1	Implement the other 4 specialties: • Industrial • Civil • Electrical • Manufacturing	Sept 2008 – September 2010
2	Establish partnership with SFU Mechatronics Engineering	January 2009
3	Obtain entrance scholarships from Industry	June 2008
4	Hire experts from Industry to teach the advanced specialty software in Diploma	January 2009
5	Achieve accreditation from ASTTBC after graduating second year Diploma graduates	December 2010
6	Create a bridging package that will take a certified technician to a certified technologist with ASTTBC	June 2011

APPENDIX N

CADD Memorandum of Understanding (MOU) with TRU Building Sciences Degree

NOTES

An articulation meeting was held at TRU on March 31 2015
In attendance:
Daryl Massey and Joanne Massey (KPU CADD)
Mindy Marshall and Walter Prescott (TRU Building Sciences Degree)
-
The discussion centered around CADD Diploma Graduates transferring directly into the 3rd year of the TRU Building Sciences Degree
Course equivalencies were identified, as well as 3 new courses that KPU CADD would develop to meet all the outcomes required.
-
KPU CADD will follow up by taking this Degree Path proposal to Senate

Discussions with Daryl Massey KPU (chair CADD), Joanne Massey KPU, Walter Prescott TRU & Mindy Marshall (chair ARET) :

Existing course equivalencies:

KPU Math 1112 = TRU Math 1000 = Math 1540
KPU Engl 1100 = TRU Engl 1000 = CMNS 1850
KPU Phys 1100 = TRU Phys 1510

Potential course equivalencies:

KPU Math 1140 (or 1120 plus 1220) = TRU Math 1640
KPU Phys 1120 with fluids in CADB 2220 = TRU PHYS 1610

Course Transfers with TRU-KPU

Year 1

Fall Semester September – December

ARET 1100	Graphical Representation (L) (2,1,2)	
ARET 1110	Computer Aided Drafting 1 (L) (2,0,2)	
ARET 1120	Architectural Representation (1,1,0)	
ARET 1200	Materials, Applications & Specifications (3,1,0)	
ARET 1500	Building Electrical Design (L) (2,0,1)	
MATH 1540	Technical Mathematics (3,1,0)	

Winter Semester January – April

ARET 1300	Building Technology 1 (L) (3,2,3)	
ARET 1400	Civil Technology 1 (L) (4,1,2)	
ARET 1410	Construction Surveying (L) (2,0,3)	
ARET 1510	Building Lighting Design (3,0,0)	
MATH 1640	Technical Mathematics (3,1,0)	* 1140 or 1120 plus 1220
CMNS 1850	Technical Writing 1 (3,0,0)	

Year 2

Fall Semester September – December

ARET 2500	Building Plumbing Design (L) (3,0,2)	
ARET 2100	Computer Aided Drafting 2 (L) (2,0,2)	
ARET 2200	Estimating (2,1,0)	*add to 2160
ARET 2210	Construction Management (2,1,0)	
PHYS 1510	Applied Physics 1 (L) (3,0,2)	

Winter Semester January – April

ARET 2120	Building Information Modeling (2,3,0)	
ARET 2220	Applied Research (0,1,0)	*add to 2160
ARET 2300	Building Regulations (2,1,0)	
ARET 2410	Civil Technology 2 (3,2,0)	
ARET 2600	Statics and Strength of Materials (5,0,0)	
PHYS 1610	Applied Physics 2 (L) (3,0,2)	*&Possible 1101 or 1120

Future KPU Courses:

ARET 1200	Materials, Applications & Specifications (3,1,0)	Building Science 2-CADB 2210
ARET 2300	Building Regulations (Part 3 &5 and add Part 7) (2,1,0)	
ARET 1500	Building Electrical Design (L) (2,0,1)	
ARET 1510	Building Lighting Design (3,0,0)	Building Science 1-CADB 2200
ARET 2500	Building Plumbing Design (L) (3,0,2)	
ARET 2600	Statics and Strength of Materials (5,0,0)	Building Science 3-CADB 2220

Add below to the Statics Course:

Fluids

Pressure – Gauge, Absolute and Atmospheric, Versus Depth, Measuring Devices, Bulk Modulus
Pascal's Principle – Hydraulic Press
Archimedes's Principles - Buoyancy
Fluid Flow – Volume Flow Rate, Equation of Continuity, Laminar and Turbulent Flow
Bernoulli's Equation and Applications
Reynold's Number and Viscosity
Poiseuille's Law for Laminar Flow
Darcy's Equation, Friction Losses in Pipes, Head

Thermal Properties of Matter and Heat Transfer

Thermal Energy and Temperature
Thermal Properties of Solids, Liquids and Gases
Specific Heat
Latent Heat and Change of State
Conduction, Convection and Radiation
Heat Transfer through Simple Walls and Surface Layers
Newton's Law of Cooling

Include this in CADA 1200

Notes:

1. KPU to increase estimating (ARET 2200) & research (ARET 2220) in KPU CADD 2160.
2. Once students apply to transfer to ARET program, contact should be made with ARET program chair to be assigned a mentor for their CMNS 2850 in the fall semester.
3. TRU to provide proposal/research outline (get from Shannon)
4. TRU to look at the amount of integration to be added to Building Sciences 3
    a. KPU MATH 1120 plus integration in KPU CADB 3 = TRU MATH 1640
5. TRU to identify MATH and Physics courses at TRU for bridge courses.
6. KPU transfer students can take TRU PHYSICS 1610 in Winter semester and/or TRU MATH 1640 in Winter semester, if no conflicts in scheduling.
7. TRU to investigate to ensure no conflicts with the winter semester Physics & Math courses.
8. Block transfer agreements in place with VCC, BCIT, UFV drafting certificate grades can transfer into KPU second year CADD (KPU will grant 30 undergrad credits to these vocational programs).
9. KPU has an MOU with KPU-Engineering. Engineering students with first year engineering can transfer into KPU CADD second semester (mechanical, architectural, or structural).
10. TRU to make contact with NVIT.

MOU viability

TRU capacity for students in third year: 10 students maximum
KPU to assist with promotions of the Building Science Pathways from KPU CADD program to TRU BBS program.

Bachelor of Building Science

Thompson Rivers University - Faculty of Science

The Bachelor of Building Science builds upon the three year Architectural & Engineering Technology (ARET) program. After successful completion of the ARET program, students may take one more year and complete a **Bachelor of Building Science**.

The ARET program is a nationally accredited program with the Canadian Technology Accreditation Board (**CTAB**) and Canadian Council of Technicians and Technologists (**CCTT**) with accreditation in the Building discipline. It is a recognized credential in other countries according to the Sydney Accord (Australia, Canada, Chinese Taipei, Hong Kong China, Ireland, Korea, New Zealand, South Africa, United Kingdom, and the United States).

The fourth year is intended to increase the depth and breadth of student knowledge relating to buildings and building science. Utilizing a comprehensive design project supported by discipline specific lectures, the Building Science Program at T.R.U. prepares the student in the areas of energy modeling, building envelope theory, building control theory, structural analysis, site planning principles and architectural design with significance given to detail development. Throughout the program the importance of environmental sustainability will be emphasized. The seminar for the fourth year courses will be jointly taught by tenured faculty and sessional instructors from industry where how each discipline relates to the design of the others is emphasized.

The fourth year also includes four electives. Electives should be selected to relate to any of the building disciplines, management, accounting, marketing, project management, GIS, history, geography, etc. Courses taken prior to entering the program will be considered as having met the elective requirements.

Career opportunities for graduates of the BBS and ARET programs are successful in securing positions in the following professions: civil, structural, mechanical, and electrical design, architectural design, interior design, construction management, surveying, municipal management and design, and engineering product sales.

Graduates of the Bachelor of Building Science program will meet the degree requirement for further programs such as the Masters of Architecture programs at other institutions such as UBC and Dalhousie University and

The proposed Bachelor of Building Science will start September 2015. See Mindy to put your name on the list. You will be contacted when you can enrol in the BBS program.

Future Plans: We are looking into accrediting the degree program with AIBC or CTAB. CTAB currently does not accredit degrees, but they have indicated an interest in moving into that area. We would link to be able to offer a stronger link to engineering programs which would include an overview of content to meet or exceed courses for the engineering transfer program currently offered at TRU. Adding more discipline specific electives such as project management.

Program contact: Mindy Marshall
Chair, Architectural and Engineering Technology (ARET)
Faculty of Science
250.371.5934 | mmarshall@tru.ca
http://www.tru.ca/science/programs/aret.html

Year 1

Fall Semester September – December

ARET 1100 Graphical Representation (L) (2,1,2)
ARET 1110 Computer Aided Drafting 1 (L) (2,0,2)
ARET 1120 Architectural Representation (1,1,0)
ARET 1200 Materials, Applications & Specifications (3,1,0)
ARET 1500 Building Electrical Design (L) (2,0,1)
MATH 1540 Technical Mathematics (3,1,0)

Winter Semester January – April

ARET 1300 Building Technology 1 (L) (3,2,3)
ARET 1400 Civil Technology 1 (L) (4,1,2)
ARET 1410 Construction Surveying (L) (2,0,3)
ARET 1510 Building Lighting Design (3,0,0)
MATH 1640 Technical Mathematics (3,1,0)
CMNS 1850 Technical Writing 1 (3,0,0)

Year 2

Fall Semester September – December

ARET 2500 Building Plumbing Design (L) (3,0,2)
ARET 2100 Computer Aided Drafting 2 (L) (2,0,2)
ARET 2200 Estimating (2,1,0)
ARET 2210 Construction Management (2,1,0)
PHYS 1510 Applied Physics 1 (L) (3,0,2)

Winter Semester January – April

ARET 2120 Building Information Modeling (2,3,0)
ARET 2220 Applied Research (0,1,0)
ARET 2300 Building Regulations (2,1,0)
ARET 2410 Civil Technology 2 (3,2,0)
ARET 2600 Statics and Strength of Materials (5,0,0)
PHYS 1610 Applied Physics 2 (L) (3,0,2)

Year 3

Fall Semester September – December

ARET 3300 Building Design (L) (2,2,1)
ARET 3500 Building Services Theory (L) (3,1,1)
ARET 3600 Structural Analysis 3,0,0)
ARET 3620 Wood Design (3,0,0)
CMNS 2850 Technical Writing 2 (3,0,0)
ARET 3400 Fluid Mechanics (4,0,0)

Winter Semester January – April

ARET 3310 Building Technology 2 (L) (3,2,1)
ARET 3510 Building HVAC Design (L) (4,0,3)
ARET 3410 Site Access and Circulation (3,2,0)
ARET 3630 Concrete Design (5,0,0)
ARET 3610 Steel Design (4,0,0)

Year 4

Fall Semester September – December

ARET 4100 Energy Modeling (L) (2,0,3)
ARET 4300 Architectural/Planning 1 (L) (2,2,2)
ARET 4500 Building Systems 1 (L) (2,0,2)
ARET 4600 Civil / Structural 1 (L) (2,0,2)
Elective 1
Elective 2

Winter Semester January – April

ARET 4110 Building Rating Systems (L) (2,0,2)
ARET 4310 Architectural/Planning 2 (L) (2,2,2)
ARET 4510 Building Systems 2 (L) (2,0,2)
ARET 4610 Civil / Structural 2 (L) (2,0,2)
Elective 3
Elective 4

Course Descriptions:

ARET 4100 – Energy Modeling

Energy modeling is a well-established field widely used in estimating the energy consumption of new or existing buildings. This course will introduce latest versions of commonly used freeware in this field: Retscreen, EQuest, and Hot2000. This is a software intensive program that requires students to model the energy consumptions of new and existing buildings. In addition the effects of energy conservation measures (ECM) introduced into the models will be examined. Students will have an exposure to alternative energy sources via the Retscreen models. Economics of ECM measures and renewable energy systems will be covered.

ARET 4110 – Green Building Rating Systems

Green building rating systems attempt to measure how sustainable a given building is using a variety of different requirements and metrics. In this course students will survey a number of ratings systems currently used by building professionals as a way to learn about the different strategies and technologies that are currently employed to make buildings more sustainable. The history of the various systems will be studied so that the students can see the evolution of the green building movement. Issues such as climate, building size, energy modelling, third party certification, and life cycle analysis will be discussed, so that current green building practice can be put into context. The various rating systems will be compared and contrasted to see which are most applicable to a given project. Students will be asked to apply a rating system to a project in order to demonstrate understanding. Professional designations and career opportunities relating to the ratings systems will also be examined.

ARET 4300 – Architectural & Planning 1

An integrated design process, where all members of a design team work together at the schematic design phase, will be emphasised as a means to achieve more sustainable developments in this studio based course. A large scale project will be given to the students and an in-depth site analysis conducted. A master plan will be developed before students focus in on the design of individual buildings. A series of progressive green building strategies such as building envelope, lighting, heating, cooling, energy production, and water and waste, will be researched and presented. Students will then select the appropriate technologies and integrate them into the schematic design of a green building.

ARET 4310 – Architectural & Planning 2

The student will be involved in design development and construction documents for the undergraduate design project. Students will coordinate with engineering consultants while ensuring compliance with current Building Codes and Zoning Regulations. Students will be expected to develop design details with a focus on rigorous building envelope practices. Green Building rating systems will guide the overall development of the design details.

This course will feature industry professionals working in collaboration with faculty and students to further enhance building integration methods.

The seminar will conducted as a project management team meeting and will be accessible to other instructors, industry representatives and peers. It will provide a forum for the student to benefit from the ideas, suggestions, and criticisms arrived at though open discussion and debate with other members of the management team to coordinate and support the completion of the undergraduate research project.

Through discussion with the various parties involved in project design, the seminar session will also reinforce the concept of the multi-disciplinary and comprehensive nature of building construction.

ARET 4500 – Building Systems 1

This is an advanced study to the processes, techniques, and tools involved in an energy audit of Building Systems. Energy conservation measures (ECM) applicable to Electrical, Lighting, and HVAC will be covered in detail. Methods of estimating energy savings will be covered. The economic feasibility of implementing ECM strategies will be discussed. The course will familiarize students with the mathematics of energy modeling of buildings and the tools available.

ARET 4510 Building Systems 2

The course is an advanced study of commonly used sustainable energy technologies in building systems: photovoltaic technology, ground-source heat pumps, and wind turbine systems. Students will be taught the basics of designing applications of grid-connected and standalone PhotoVoltaic (PV) systems. Two increasingly used sustainable systems, Ground-source heat pumps (GSHP) and wind turbine systems, will be covered in detail. Students will familiarize themselves with using the latest version of Retscreen, an energy modeling software, to analyze the economic viability of employing these new technologies.

ARET 4600 – Civil Structural 1

This course provides the student with an understanding of site selection processes and considerations. Foundation design and soil retaining structures are examined. The course also includes an overview of structural modeling and behaviour.

Topics include: site selection; soil and foundation considerations; retaining walls; selection of structural elements with an understanding of load transfer mechanisms and stability considerations; generation of structural grids; selection of structural systems to resist both gravity and lateral loads; preparation of structural working drawings.

The lab portions of the course will involve the application of the course content to a major architectural project using current AutoDesk® structural software.

ARET 4610 – Civil Structural 2

This course examines in detail various structural elements and their load transfer mechanisms for preparation and modeling in structural analysis software.

Topics include: simple structures; continuous beams and rigid frames; plate and grid structures; membrane net and shell structures; gravity load take-downs; lateral loads; modeling and analysis; preparation of structural working drawings.

The lab portions of the course will involve the application of the course content to a major architectural project using AutoDesk® structural software and an industry standard structural analysis software.

APPENDIX O

Accreditation: Applied Science Technologists and Technicians of BC (ASTTBC) CADD Program - National Bench Marks

NOTES

In planning to apply for the Canadian Technolgies Accreditation Board (CTAB) accreditation, the CADD program prepared a matrix to compare its strengths to the National Technology Benchmarks for the Technician Level.

These benchmarks can be found at
http://cctt.ca/template.asp?id=120e06ba65a44d2b81f4004ccc7e68dc

This endeavor is on hold as the local technology chapter, Applied Science Technologists and Technicians of BC (ASTTBC) no longer recognizes CTAB accreditation. They now recognize Technology Accreditation Canada (TAC) accreditation, but TAC does not yet have an accreditation process in place

CANADIAN TECHNOLOGY ACCREDITATION BOARD
TABLE 1 - PROGRAM MATRIX - TECHNICIAN

Kwantlen Polytechnic University			Semester 1						Semester 2 Architectural						Semester 2 Mechanical						Semester 2 Structural						Semester 3						Semester 4						
Computer Aided Design and Drafting (CADD) Technician			CADD 1100 Drafting Fundamentals	CADD 1110 Summative Project	CADD 1150 CADD Software	CADD 1160 Office Procedures			CADA 1200 Arch. Fundamentals	CADA 1210 Residential Houses	CADA 1220 Commercial Buildings	CADA 1250 3D for Arch. (BIM)			CADI 1210 Materials Handling	CADI 1220 Process Piping	CADM 1210 Component Assembly	CADM 1250 3D Parametric Modeling			CADS 1200 Concrete	CADS 1210 Steel	CADS 1220 Wood	CADS 1250 3D for Struct (BIM)			CADD 2100 3D Rendering	CADD 2160 Professional Practice	CADD 2110 Surveying	MATH 1112 Pre-Calculus	BUSI 1210		CADD 2220 Sustainable Design	CADD 2250 Networking and Custom.	PHYS 1100	ENGL 1100			
X = this course offers the opportunity to fulfill the Program Outcome																																						
Five Program Strengths (to be presented to the review committee)																																						
Five core courses that best represent each Program Strength selected																																						
National Technology Benchmarks Version used: 2012																																						
Date Program Matrix was created / revised: October 2013																																						
National Technology Benchmarks - Program Outcomes																																						
NTB #		**Extracted from ELM, CS, AB, SG & EV**																																					
1	GC01-T	Communicate clearly, concisely and correctly in writing and in person.				X																						X					X					
2	GC02-T	Apply a wide variety of mathematical techniques with the degree of accuracy required to solve problems and make decisions.																											X	X									
3	GC03-T	Interact with others in groups or teams that contribute to the effective working relationships.	X	X	X	X	X		X	X	X	X			X	X	X	X			X	X	X	X			X	X	X				X	X					
4	GC04-T	Create innovative strategies and/or products that meet identified needs.							X	X	X	X			X	X	X	X			X	X	X	X										X					
5	GC05-T	Understand the basic fundamentals of management principles, ethics, sustainability, contract law, and codes and standards.																										X				X							
6	GC06-T	Obtain and analyze data; prepare reports, plans, specifications, sketches, graphics, drawings, or other technical documentation.					X		X	X	X	X			X	X	X	X			X	X	X	X					X						X				
7	GC07-T	Use computer hardware and software necessary to the performance of tasks within the discipline.	X	X	X	X	X		X	X	X	X			X	X	X	X			X	X	X	X			X	X	X				X	X					
8	GC08-T	Apply knowledge of safe working practices, including Occupational Health & Safety Regulations.																X										X											

This page:
Canadian Technology Accreditation Board (CTAB)

General Outcomes (Technician level)

From National Technology Benchmarks

http://cctt.ca/template.asp?id=18BDB75FF7F644FC858862426781380 9

Following page:
Canadian Technology Accreditation Board (CTAB)

Specific Outcomes (KPU CADD Diploma)

From National Technology Benchmarks

http://cctt.ca/template.asp?id=18BDB75FF7F644FC858862426781380 9

CANADIAN TECHNOLOGY ACCREDITATION BOARD
TABLE 1 - PROGRAM MATRIX - TECHNICIAN

Kwantlen Polytechnic University

Computer Aided Design and Drafting (CADD) Technician

X = this course offers the opportunity to fulfill the Program Outcome

Five Program Strengths (to be presented to the review committee)

Five core courses that best represent each Program Strength selected

National Technology Benchmarks Version used: 2012

Date Program Matrix was created / revised: October 2013

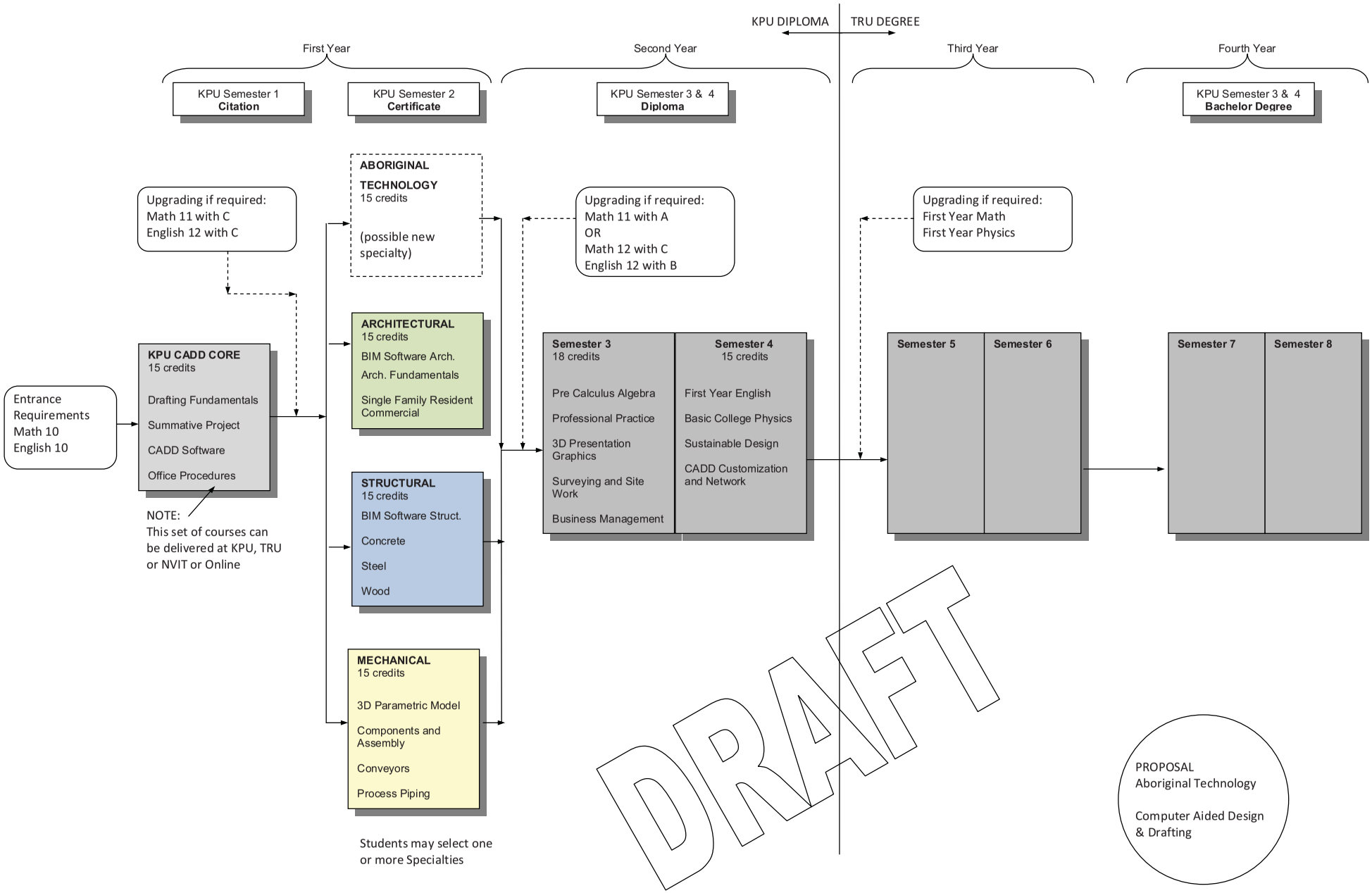
			Semester 1						Semester 2 Architectural						Semester 2 Mechanical						Semester 2 Structural						Semester 3						Semester 4						
	National Technology Benchmarks - Program Outcomes		CADD 1100 Drafting Fundamentals	CADD 1110 Summative Project	CADD 1150 CADD Software	CADD 1160 Office Procedures			CADA 1200 Arch. Fundamentals	CADA 1210 Residential Houses	CADA 1220 Commercial Buildings	CADA 1250 3D for Arch. (BIM)			CADI 1210 Materials Handling	CADI 1220 Process Piping	CADM 1210 Component Assembly	CADM 1250 3D Parametric Modeling			CADS 1200 Concrete	CADS 1210 Steel	CADS 1220 Wood	CADS 1250 3D for Struct (BIM)			CADD 2100 3D Rendering	CADD 2160 Professional Practice	CADD 2110 Surveying	MATH 1112 Pre-Calculus	BUSI 1210		CADD 2220 Sustainable Design	CADD 2250 Networking and Custom.	PHYS 1100	ENGL 1100				
	NTB #	**Extracted from ELM, CS, AB, SG & EV**																																				
9	ELM01-T	Fabricate Components: Fabricate mechanical components; assemble electrical components and electronic assemblies.															X																					
10	ELM02-T	Drawing Production: Produce electrical, electronic, and mechanical drawings and other related documents and graphics to appropriate engineering standards.	X	X	X				X	X	X	X			X	X	X	X			X	X	X	X			X		X									
11	ELM05-T	Manufacturing and Handling: Assist in the specifying of manufacturing materials, processes, and operations.															X																					
12	ELM10-T	Inventory and Documentation Systems: Establish and maintain inventory, records, and documentation systems.																										X					X					
13	CS05-T	Network Components: Install, troubleshoot, and maintain network components.				X																						X						X				
14	CS08-T	Security: Apply knowledge of security issues to the implementation of information technology solutions.																																X				
15	CS07-T	Data Storage: Monitor data storage procedures designed to ensure the integrity of information.																																X				
16	AB03-T	Project Management: Apply the principles of project management to plan, schedule and monitor projects				X				X	X				X	X	X				X	X	X					X										
17	AB01-T	Architectural Drawings: Prepare complete sets of architectural drawing for residential and light commercial construction/renovation projects.							X	X	X	X																										
18	AB02-T	Building Design and Detailing: Apply the basic architectural principles in building design and detailing.							X	X	X	X																										
19	AB04-T	Building Science: Apply the principles of building science and construction engineering to analyze and solve technical problems related to construction projects.							X	X	X	X																										
20	AB09-T	Codes, Bylaws, and Regulations: Apply knowledge of applicable building codes, zoning bylaws, and regulations.							X	X	X	X																										
21	AB11-T	CAD Systems: Apply good working knowledge of CAD systems.							X	X	X	X			X	X	X	X			X	X	X	X			X		X									
22	AB12-T	Sustainable Energy and Environmental Design: Apply the principles of sustainable energy and environmental design in building construction projects.		X		X			X	X	X	X			X	X	X				X	X	X					X					X					
23	SG01-T	Geospatial Terrain Data: Collect, interpret, and use geospatial terrain data from existing digital, hardcopy and non-traditional sources, reports, and other geo-related documents.																											X								
24	SG02-T	Survey Data: Assist in the collecting and processing of survey data using GPS equipment.																											X								
25	SG03-T	GIS Data: Communicate information by interpreting, translating, and presenting geomatics data.																											X								
26	EV07-T	Occupational Health and Safety: Carry out work in adherence to Occupational Health and Safety regulations.																										X									

APPENDIX P

CADD Aboriginal Technology (Proposal)

NOTES

This item has been prepared and submitted to the Dean's Office in Trades and Technology.
Members of the CADD Department are prepared to work with the Dean's office to respond to a Request for Proposals (RFP) for Aboriginal Programs.


KPU DIPLOMA
TRU DEGREE
First Year
Second Year
Third Year
Fourth Year
KPU Semester 1
Citation
KPU Semester 2
Certificate
KPU Semester 3 & 4
Diploma
KPU Semester 3 & 4
Bachelor Degree
ABORIGINAL
TECHNOLOGY
15 credits
(possible new specialty)
Upgrading if required:
Math 11 with C
English 12 with C
Upgrading if required:
Math 11 with A
OR
Math 12 with C
English 12 with B
Upgrading if required:
First Year Math
First Year Physics
KPU CADD CORE
15 credits
Drafting Fundamentals
Summative Project
CADD Software
Office Procedures
Entrance Requirements
Math 10
English 10
NOTE:
This set of courses can be delivered at KPU, TRU or NVIT or Online
ARCHITECTURAL
15 credits
BIM Software Arch.
Arch. Fundamentals
Single Family Resident Commercial
STRUCTURAL
15 credits
BIM Software Struct.
Concrete
Steel
Wood
MECHANICAL
15 credits
3D Parametric Model
Components and Assembly
Conveyors
Process Piping
Students may select one or more Specialties
Semester 3
18 credits
Pre Calculus Algebra
Professional Practice
3D Presentation Graphics
Surveying and Site Work
Business Management
Semester 4
15 credits
First Year English
Basic College Physics
Sustainable Design
CADD Customization and Network
Semester 5
Semester 6
Semester 7
Semester 8
DRAFT
PROPOSAL
Aboriginal Technology
Computer Aided Design & Drafting

APPENDIX Q

Full Program Proposal (FPP) – Bachelor of Technology in Trades Innovation

NOTES

Kwantlen
POLYTECHNIC
UNIVERSITY

Full Program Proposal

Bachelor of Technology in Trades Innovation

Faculty of Trades & Technology
Kwantlen Polytechnic University

August 2010

Table of Contents

Appendices

Part 1 - Executive Summary

Founded as a community college for the South Fraser Region in 1981, subsequently granted university college status in 1995, and university status in 2008, Kwantlen Polytechnic University has provided outstanding undergraduate education for more than twenty-five years. Undergraduate degrees have been offered at Kwantlen since 1996, along with a wide array of diplomas, associate degrees, certificates and citations in different fields of study. The university continues to prepare its students for successful careers as well as helping them develop the skills and critical awareness to be responsible citizens and community leaders. Today, Kwantlen serves approximately 17,500 students each year and is the fourth largest university in British Columbia.

Designated as a "special purpose teaching university", Kwantlen Polytechnic University was specifically directed to serve the regions encompassing Langley, Surrey, Delta and Richmond. Across its four main campuses, Kwantlen takes up its role as B.C.'s polytechnic university by offering in excess of 130 programs spanning such diverse educational areas as Trades, Vocational, Preparatory, Professional, and Academic. As a leader in innovative education, Kwantlen creates relevant and engaging programs that integrate a broad-based university education, community service opportunities, undergraduate and applied research experience, and essential skills practice. The learning culture at Kwantlen is learner-focused, academically rigorous, innovative, interdisciplinary and socially responsible.

Arising from its commitment to serve the Fraser Region, Kwantlen offers all learners, regardless of background and preparation, and from across the country and abroad, opportunities to achieve the highest standards of academic performance. Access and support services, multiple entry points, and bridging programs are examples of this commitment. Transition programs, international education, workplace experiences and continuing education are also part of Kwantlen's commitment to lifelong learning across a broad range of educational options.

Our university culture is based on critical inquiry, collegial debate, knowledge generation, freedom of expression, diversity, and environmental stewardship and sustainability.

See the Mission & Mandate document at: http://www.kwantlen.ca/mission/mission-mandate.html#.

Proposed credential to be awarded, including the level and category of the degree and the specific discipline or field of study

Bachelor of Technology in Trades Innovation.

Location

The program will be offered on Kwantlen's Cloverdale Campus.

Faculty(ies) or school(s) offering the proposed new degree program

The Faculty of Trades and Technology will be offering the proposed Bachelor of Technology in Trades Innovation degree.

Anticipated program start date

The anticipated start date of the program (third year) is September 2011.

Anticipated completion time in years or semesters

Students engaged in full-time study will be able to complete the Bachelor of Technology in Trades Innovation over four semesters. Entrance requirements into third year include 60 undergraduate credits or equivalent.

A summary of the proposed program

Key features of the Bachelor of Technology in Trades Innovation degree include the following:

Aims, goals, and or objectives of the proposed program

As indicated in *Skills for growth: The national skills strategy*, which was presented to the British Parliament in 2009, noted "the skills system needs to mesh with our university system in such a way that there is a clear vocational route from apprenticeship to technician to foundation degree and beyond." (p. 1, 2009). This proposed degree provides that pathway.

This proposed degree provides the pathway for individuals to ladder into the third year of the degree with a Trades Qualification recognized by the Industry Training Authority of BC (ITABC), and/or a Red Seal with Human Resources Service Development Canada (HRSDC).

This proposed degree will also accept students into the third year of the degree with post secondary credits awarded in approved trades and/or technology courses. Approved courses will be identified as having substantial trade and/or technology focus to provide a foundation that will support the proposed community/industry based projects in the fourth year.

Anticipated contribution of the proposed program to the mandate and strategic plan of the institution

Kwantlen's Mission and Mandate states "*as a leader in innovative and interdisciplinary education, we offer all learners, regardless of background and preparation, opportunities to achieve the highest standards of academic performance. Our many programs of study provide applied learning and broad-based university education*". Kwantlen is bringing this mandate to life by:

- Preparing graduates to apply their experiential education and give them agency to take leadership roles in businesses and communities
- Preparing knowledgeable skilled graduates who are able to meet needs and challenges that face society

Given the diversity of study areas at this polytechnic university, this proposed degree will give students the opportunity to gain depth in trades and technology while at the same time acquiring breadth in a variety of disciplines.

Linkages between the learning outcomes and the curriculum design, an indication whether a work experience/work place term is required for degree completion, and if so a description of the purpose and role of the work experience within the program

Learning outcomes were identified in consultation with trades/technology faculty and a large Program Advisory Committee (BTech PAC) with members from industry, regulating bodies, secondary and post-secondary education, and trades and technology students. (see Appendix A for a list of BTech PAC members).

The curriculum will be derived from these learning outcomes and will be conducive to the capstone project in the fourth year. Students will partner with a community or industry group to develop solutions to an identified need. The learning outcomes encompass a broad range of skills and knowledge required to complete the capstone project, such as:

- implement information technology to improve productivity
- follow regulatory and legal requirements and policies for health and safety
- conduct cost-benefit analysis of sustainable practices
- apply critical thinking and problem solving techniques to make decisions
- determine the most expedient design given parameters and constraints set by budget, time, standards and codes
- document research in a format that will enable repeatable results

There is no work experience/practicum required. Students who enter this program will benefit from the experience and knowledge they will gain from the community service project (Capstone Project) in the fourth year of the degree.

Potential areas/sectors of employment for graduates and/or opportunities for further study

Potential areas of employment for graduates include trades and technology careers in:

- Positions of management in trades and technology industries
- Planning and Design (engineering, industrial, architectural)
- Resource management
- Infrastructure
- Manufacturing / Fabrication / Construction
- Project management
- Product development
- Research and development of new techniques and procedures for construction and fabrication
- Sustainable building practices and renewable energy sources

Delivery methods

The structure of the program will allow for all delivery types, such as part-time, distance and classroom/lab and shops.

A range of educational opportunities will be made available to ensure that students who are mid-career are able to continue with their working life while completing the degree.

Program strengths

In granting post-secondary credits to Trades Qualification training and to training in technology, the degree gives academic recognition and respect to the significant learning that occurs in the informal learning environment that occurs at work as well as the formal learning that occurs at school.

The proposed Bachelor of Technology in Trades Innovation builds on the efficacy of practical, hands-on experience in the Faculty of Trades and Technology and enriches the learning experience by incorporating the institution's strengths in humanities, social sciences and business. The program takes a thematic approach to the development of leadership attributes and skills while considering the ramifications of technical advances in the realm of society, economics, the environment and sustainable resources.

This degree is designed to be flexible to keep up with the changing developments in technology. The program will be reviewed annually by the Program Advisory Committee (BTech PAC) to ensure validity and currency in the program. It will also be reviewed by the Senate Sub-Committee on Program Review (SSCPR).

An overview of the level of support and recognition from other post-secondary institutions, and relevant regulatory or professional bodies, where applicable, and plans for admissions and transfer within the British Columbia post-secondary education system

Support and commentary has been received from the following:

Regulatory Bodies

- Industry Training Authority of BC (ITABC)

Professional Bodies

- Applied Science Technicians and Technologists of BC (ASTTBC)

Other Post-Secondary Institutions

- Fanshawe College , London, Ontario

Admissions and Transfer within the BC Post-secondary education system

Transfer Credit and Prior Learning Assessment
Students may utilize up to 75% transfer credit, block transfer credit, or credit earned through Prior Learning Assessment (PLA) or any combination of those three sources of credit earned outside of Kwantlen that does not exceed 75%.

The program is designed to accommodate students arriving with a variety of backgrounds. Students transferring courses from within the British Columbia Post Secondary education system will have a relatively direct pathway.

Related programs in the institution or other British Columbia post-secondary institutions. Indicate rationale for duplication, if any.

This degree has similarities in structure, i.e. a two plus two format or identified student target groups, i.e. individuals with a background in trades and technology, with the following programs:

Other BC Post-Secondary Institutions

- TRU – BTech in Trades and Technology Leadership
- UFV – Bachelor of Business Administration – Trades Management
- BCIT – Bachelor of Construction Management

***Name, title, phone number and e-mail address of the institutional contact person in case more information is required*.**

Joanne Massey
Department Chair, Computer Aided Design and Drafting (CADD) Technologies

joanne.massey@kwantlen.ca

604-598-6120

Part 2 – Degree Content

Aims, goals, and or objectives of the proposed program

This program will recognize the learning, knowledge and skills acquired in a ticketed trade by granting academic credit to the ticket, which will enable ticketed journeypersons to advance their careers by completing an additional two years of studies in various disciplines to obtain an undergraduate degree.

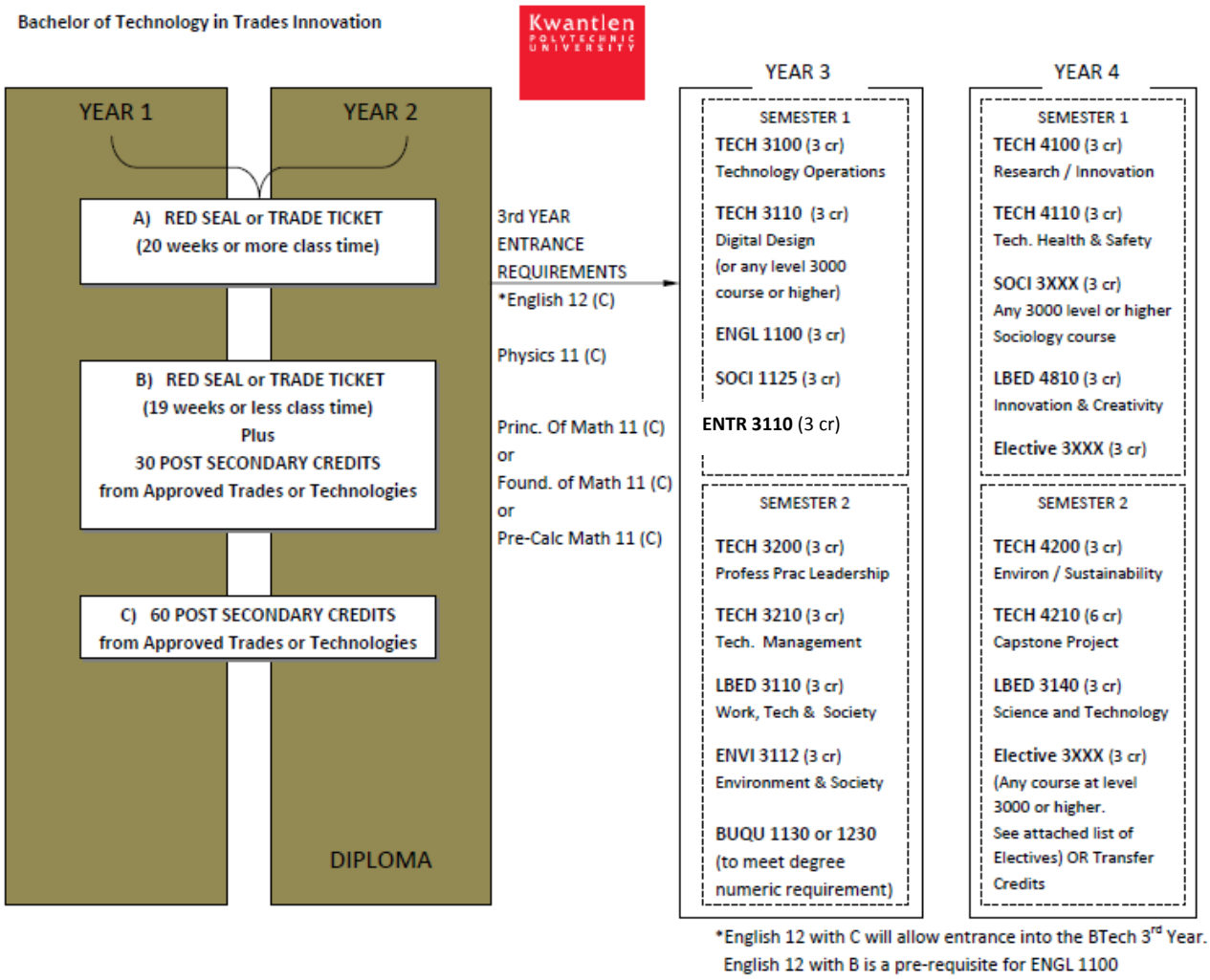
This proposed degree will also accept students into the degree stream with post secondary credits awarded in *approved trades and/or technology courses. These courses will be identified as having substantial trade and/or technology focus to provide a foundation that would support the proposed community based projects (Capstone Project) in the fourth year.

This program will relate to, and engage with, existing or proposed programs at Kwantlen by recognizing the valuable contribution of the outcomes from humanities, social sciences and business courses, and incorporating them into this degree.

*Approved trades/technology courses:

1) All credited programs delivered by the Faculty of Trades and Technology at Kwantlen;
2) Training/education in all industry areas identified as Technician/Technology occupations with the Canadian Technology Human Resources Board (CTHRB);
3) Training/Education in all industry areas identified as Trades Qualifications with the Industry Training Authority of BC (ITABC), and/or a Red Seal with the Human Resources Service Development Canada (HRSDC);
4) Training/Education in any industry area judged on a case by case basis to be conducive to the Bachelor of Technology in Trades Innovation by the BTech Degree Review Panel at Kwantlen; or
5) Up to 15 post-secondary credits obtained in fields other than those outlined above.

FLOW CHART



Graduates of this program will:

- Relate the principle assumptions, methodologies and applications of trades and technology and the way that these professional fields have developed.
- Interpret the relationship and interaction of trades and technologies with other disciplines of study.
- Assess developments, needs and trends in the fields of trades and technology.
- Interpret and critically evaluate and apply new material relevant to the fields of trades and technical leadership.

- Debate and sustain arguments, and/or solve practice-related problems, using ideas and techniques, some of which are at the forefront of trades and technology.

- Evaluate and comment upon particular aspects of current research/development, or equivalent advanced scholarship in trades and technology and how these are relevant.

- Collect, review, present and critically evaluate qualitative and quantitative data pertaining to trades and technology.

- Apply underlying concepts, principles, and techniques of analysis, both within and outside the context of trades and technology.

- Use a range of established techniques and bodies of knowledge to initiate and undertake critical analysis of arguments, assumptions, abstract concepts and data.

- Apply the methods and techniques of experience in trades and technology to extend professional competence, including ethics and other professional practices.

- Frame appropriate questions to achieve a solution or to identify a range of solutions to challenges in trades and technology.

- Research, develop and document solutions to issues and innovations in trades and technologies.

- Initiate and carry out trades and technology projects.

- Make critical use of scholarly and professional reviews and primary sources appropriate to trades and technology.

- Prepare for employment in a trade/technology field that requires the exercise of initiative, responsibility and accountability in both personal and group contexts.

- Apply leadership and management skills.

- Make decisions in complex and unpredictable contexts.

- Communicate information, arguments, and analyses accurately and reliably, using trades and technology concepts and terminology, orally and in writing.

- Analyze the uncertainty, ambiguity and limits of knowledge and how this might influence analysis and interpretations based on that knowledge of trades and technology.

- Manage learning in changing circumstances, both within and outside trades and technology courses.

Anticipated contribution of the proposed program to the mandate and strategic plan of the institution

This degree will fulfill item #1 of the Senate approved Academic Planning and Priorities to "implement and support new programs, especially those that reflect community needs, labour market and broad societal education needs, and which are in keeping with Kwantlen's values and mandate as a Polytechnic University." In this integrated program, students will develop a broad range of knowledge, attitudes, and skills to be effective and innovative leaders in their careers and communities. Students will participate in community/industry service projects that will develop sustainable solutions to identified needs.

This program will give students the benefit of a supportive educational environment with low student-teacher ratios and student-centered learning from instructors that possess both education and extensive experience in a Trade or Technology field. Students will graduate with a broad base of knowledge as well as specialized skills and practical experience.

A focus of the degree will create an environment for students to engage in community/industry issues by establishing relevant research projects. Students will identify a need that can be addressed by the particular trade or technology that each individual student is focusing. Students will engage with community/industry groups to research and develop sustainable solutions based on needs analysis, and record the research for future replication to provide on-going and future benefits to society.

Six key values have been identified as a guide for planning new degree programs at Kwantlen Polytechnic University, and these have been at the forefront in the development of this Bachelor of Technology in Trades Innovation:

Exploration, Inclusiveness, Excellence, Integrity, Community and Accountability.

Linkages between the learning outcomes and the curriculum design, an indication whether a work experience/work place term is required for degree completion, and if so a description of the purpose and role of the work experience within the program

Learning outcomes listed throughout this proposal, and in the Course Descriptions in Appendix B were developed through long standing consultation with industry professionals and other stakeholders who now make up the Bachelor of Technology in Trades Innovation Program Advisory Committee (BTech PAC).

The concept for the originating Trades diploma was approved by Kwantlen's Educational Council in April 2005. This degree is built upon the basis of that diploma.

Through an industry needs assessment survey conducted in November 2009, 132 respondents provided feedback regarding a need for the degree, and what the content should be.

Two BTech PAC meetings were held in March and April 2010 during which the degree learning outcomes were identified. The learning outcomes encompass a broad range of trades and technology related skills and knowledge such as:

- implement information technology to improve productivity
- follow regulatory and legal requirements and policies for health and safety
- conduct cost-benefit analysis of sustainable practices and of alternate energy sources
- apply critical thinking and problem solving techniques to make decisions
- determine the most expedient design given parameters and constraints set by budget, time, standards and codes
- apply project management skills
- establish project teams and develop project proposals
- identify required material and human resources and raise funds
- apply Kaizen (continuous incremental improvements) and Business Process Reengineering (BPR)techniques for improvement in productivity and performance
- document research in a format that will enable repeatable results

Curriculum will be developed upon the foundation of these learning outcomes to ensure that the integrity of the degree is maintained as well as meet industry needs and expectations.

There is no work experience or practicum required in the degree. There is a Capstone Project in the fourth year, in which students will be engaged with a community or industry partner to research, develop and implement a solution to an identified need or challenge.

Potential areas/sectors of employment for graduates and/or opportunities for further study

Employment for Graduates

The nature of the learning and applied skills acquired in this degree will broaden opportunities for graduates to advance their careers in trades and technology. Having obtained increased knowledge and understanding of the peripheral ramifications of technological advancement, graduates may seek employment in the trades and technology sector within positions of management, planning, design, resource management, infrastructure, manufacturing, fabrication, construction, project management and product development. Opportunities in areas of research and development that focus on new techniques and procedures for construction and fabrication, sustainable building practices and renewable energy sources are also career pathways to be pursued.

Skills, knowledge and expertise that will lead to employment for graduates of this degree were identified in Needs Assessment Surveys that were conducted in October and November 2009. The surveys included Industry, current Trades and Technology students, and Secondary School teachers.

Further study for Graduates

This degree will permit graduates to pursue additional credentials in areas such as business, education and architecture.

Delivery Methods

The structure of the program will allow for all delivery types, such as part-time, distance and classroom/lab and shops.

A range of educational opportunities will be made available to ensure that students who are mid-career are able to continue with their working life while completing the degree.

Program Strengths

This program provides opportunity for students from Kwantlen and other provincial and national institutions to apply existing education towards a degree. This includes mid-career professionals who have been working in their respective fields for several years before entering into the degree program, and students transferring from other institutions who have earned the required number of trades and/or technology post-secondary credits.

This program decreases systemic barriers to undergraduate degrees by formalizing the recognition of the knowledge, skills and experience of students who have successfully completed their trade or technology program and are seeking opportunities to advance their career. This program supports learning beyond the trades and technology fields.

One strength of this program is that students who have the following credentials and meet the degree entrance requirements can ladder into the 3rd year of the Bachelor of Technology in Trades Innovation:

- Trade ticket in a trade as defined by the Industry Training Authority of British Columbia (ITABC) and/or Red Seal Certification as defined by Human Resources Service Development Canada (HRSDC) that incorporate 20 weeks or more of classroom instruction.
- Trade ticket in a trade as defined by the ITABC and/or Red Seal Certification as defined by HRSDC that incorporates 19 weeks or less of classroom instruction, plus 30 post-secondary or undergraduate credits in Trades and/or Technology courses.
- 60 post-secondary credits in approved Trades and/or Technology courses.

Another strength of this program is that it is ideally suited for mature students, particularly trades journeypersons who wish to use their experience as a basis to enrich their employment by entering into a management or leadership position, or by owning and operating their own company.

Many immigrant professionals have entered into a trade in BC as an expedient way to take short packages of training and then enter the workforce to continue the required on the job training, but at the same time earn a wage. In some cases, immigrant professionals can transfer credits from education from outside Canada that could be included as an elective in the third or fourth year.

An overview of the level of support and recognition from other post-secondary institutions, and relevant regulatory or professional bodies, where applicable, and plans for admissions and transfer within the British Columbia post-secondary education system

Regulating Bodies

Doug Podetz
Lead, Program Standards
Industry Training Authority BC (ITABC)

Professional Bodies
Geoff Sale
Past Chair, Canadian Technology Accreditation Board
Canadian Council of Technicians and Technologists (Ottawa, Ont.)
Manager, Internationally Trained Professionals Program,
Applied Science Technologists and Technicians of BC

Other Post-Secondary Institutions
Lane D. Trotter, Ed.D. (formerly Dean of Transportation at BCIT)
Senior Vice President, Academic
Fanshawe College, London, Ontario

See Appendix D for external comments and support

Admissions and Transfer within the BC Post-secondary education system

Transfer Credit
Students may utilize up to 75% transfer credit as outlined in the BC Council on Admissions and Transfer (BCCAT) Transfer Guide, or granted to courses on an individual basis, to obtain the proposed degree.

Block Transfer
Students who have a credential in a recognized trade, or as a technician or technologist in a recognized technology, may transfer the appropriate number of credits for the credential as a block of credits without scrutiny of individual courses.

Prior Learning Assessment
Students may utilize up to 75% credits earned through Prior Learning Assessment (PLA) to obtain the degree, or they can utilize a combination of transfer/block credit and PLA credit that does not exceed 75% of the undergraduate credits required for the degree.

Related programs in the institution or other British Columbia post-secondary institutions. Indicate rationale for duplication, if any.

Other BC Post-Secondary Institutions

This degree is similar to some other degrees in BC post-secondary institutions in that it accepts up to 60 undergraduate credits for trades or technology training:

- TRU – BTech in Trades and Technology Leadership
- UFV – Bachelor of Business Administration – Trades Management
- BCIT – BTech in Construction Management

Curriculum Design

Year 3, Semester 1

TECH 3100* - Technology Operations
TECH 3110* - Digital Design (or elective, any level 3000 course or higher)
ENGL 1100 – Writing, Reading, Thinking
SOCI 1125 – Introduction to Society
ENTR 3110 – Adv. Organization Behavior

Year 4, Semester 1

TECH 4100* – Research and Innovation
TECH 4110* – Technology Health & Safety
SOCI 3XXX - Any 3000 level or higher Sociology course
LBED 4810 - Innovation & Creativity
Elective - Any level 3000 or higher.

Year 3, Semester 2

TECH 3200* - Profess Practice / Leadership
TECH 3210* -Technology Management
LBED 3110 - Work, Technology & Society
ENVI 3112 - Environment & Society
BUQU 1130 or **1230** – Business Math or Statistics

Year 4, Semester 2

TECH 4200* – Environmental Sustainability
TECH 4210* - Capstone Project (6 credits)
LBED 3140 - Science and Technology
Elective - Any level 3000 or higher.

*New Course (to be developed)
See Appendix B for new (TECH) course descriptions

Program Delivery

This program relies on a unique complement of theoretical courses, applied hands-on courses, and provides for a variety of teaching/learning modalities. Shop and laboratory-based experiential studies will help students to develop critical thinking and problem solving skills.

Further, the program requires a Capstone Project in fourth year that will executed in collaboration with a community/industry partner. Students will work with a project advisory committee, comprised of industry and educational mentors, who will provide a network of support. Students will present the completed project to stakeholders.

Students will have the option of enrolling in this program on either a full or part-time basis. Some core and elective courses are currently and routinely available at the Langley, Surrey and Richmond campuses and across all three academic semesters. This will increase program accessibility. Also to maximize accessibility it is anticipated that some courses will also be available as evening and/or weekend classes and students will be able to flexibly schedule their required fieldwork.

Admission Requirements

Students entering into the third year of this degree must meet two requirements:

1) They must have a Trades Qualification and/or post-secondary credits in approved technology courses:

- Trade ticket in a trade as defined by the Industry Training Authority of British Columbia (ITABC) and/or Red Seal Certification as defined by Human Resources Service Development Canada (HRSDC) that incorporate 20 weeks or more of classroom instruction.
- Trade ticket in a trade as defined by the ITABC and/or Red Seal Certification as defined by HRSDC that incorporates 19 weeks or less of classroom instruction, plus 30 post-secondary or undergraduate credits in Trades and/or Technology courses.
- 60 post-secondary credits in approved Trades and/or Technology courses.

2) They must meet entrance requirements which have been identified as:

- Principles of Math 11-C or Foundations of Math 11-C or Pre-Calculus 11-C (or equivalent or higher)
- Physics 11-C (or equivalent)
- English 12-B (or equivalent or higher) Note: English 12 with a C will allow entrance into the BTrades/Tech 3rd Year. English 12 with a B is a pre-requisite for ENGL 1100.

The entry requirements support students' success in the prescribed third and fourth year courses, and meet writing, quantitative and breadth requirements for a degree as outlined in Kwantlen Policy B.19, "General Education in Degree Programs".

Faculty

The following Kwantlen Polytechnic Faculty have industry experience at senior levels. Several have Engineering degrees in addition to advanced degrees and professional credentials.

Dr. Paul Becker: B.Sc. An engineer with an MBA and a Ph.D. (Education, University of Saskatchewan)

Ali Hassanlou: B.Eng., Industrial, M.Eng., Industrial, M.Eng., (Iran) Engineering Management (Ottawa)Ph.D. in Management (Carleton)

Xing Liu: B.Sc., Electrical Engineering, M.Sc. (Electrical Engineering), Ph.D. (Wales)

Marcelo Machado: Bachelors in Industrial Engineering, Masters in Production Engineering and Systems, PhD Knowledge Management Systems, Japan Advanced Institute of Science and Technology (JAIST).

Brad Anderson: B.Sc., Biochemistry, M.Sc., Medical Science, MBA (UBC)

Catriona Eigenfeld: B.Sc., Accounting, MBA(DePaul University, Chicago), CMA

Ho Yee Low: MBA (City University, Seattle), CMA

Ron Messer: B.Comm., MPA, Systems(UVic), MBA, Finance(UBC), CA, CMA

Duane Radcliffe: B.Phys.Ed., MBA – Human Resources Management (Royal Roads Univ.)

Mehdi Talwerdi: B.Sc., Computer Science and M.Sc. Computer Science and Geophysics (East Texas State University)

Vasile Zamfirescu: B. Comm. International Business, M.Sc., Industrial Engineering, MBA Operations and Marketing (U of A)

The following four members of the Trades and Technology Faculty have certification in a specific trades and technology area complemented by a Masters in Education.

Tally Wade: Management Development Certificate, P.I.D., Med. Leadership (SFU) with expertise in Public Safety Communications

Mary Wilton: Parts and Warehousing TQ(IP), M.Ed. Leadership (SFU)

Rob Finlayson: Metal Fabrication TQ(IP), P.I.D., M.Ed. Leadership (SFU)

Christina Heinrick, Diploma in Drafting, Diploma in Adult Education, M.Ed. Leadership with expertise in CADD Technologies

Additional faculty and resource people will be drawn from industry where additional expertise or currency is required, as is the practice in our Interior Design and Business programs.

See Appendix C for Faculty Curriculum Vitae

Program Resources

- ***Library resources***
  Library resources at the Cloverdale Campus will need to be increased to support third and fourth year courses.
- ***Computer and computer access***
  No additional computer resources are required.
- ***Classrooms, laboratories and equipment***
  Equipment:
  A rapid prototyper and computerized assisted machining (CAM) router will be required for development of projects as well as fluid power and metals testing equipment.

  The division will seek industry partnerships to provide much of the additional equipment required of this program. Some additional capital funding required.
- ***Facilities***
  No additional facilities will be required, but additional time in the trades shops will be required, which includes access to these shops on evenings and weekends.
- ***Existing and shared resources at the institution or at other institutions that will be used to offer the program***
  The Faculty of Trades and Technology will work closely with the BTech program and with the other School of Business Degree programs. Several School of Business faculty are also highly qualifie*d* and experienced in specific technologies.
- ***Additional resources that will be required to offer this program***
  There will be an additional 2 faculty FTE required for the first cohort. Some of the course content will be drawn from existing courses offered elsewhere within the institution.

Implementation Schedule

Sept 2010	Develop course outlines for new courses for Year 3, Semester 1 TECH 3100, TECH 3110
Nov 2010	Senate approval for new course outlines for Year 3, Semester 1
Jan 2011	Develop course outlines for new courses for Year 3, Semester 2 TECH 3200, TECH 3210

Mar 2011	Senate approval for new course outlines for Year 3, Semester 2
Sept 2011	**Implementation of Year 3, Semester 1**
Sept 2011	Develop course outlines for new courses for Year 4, Semester 1 TECH 4100, TECH 4110
Nov 2011	Senate approval for new course outlines for Year 4, Semester 1
Jan 2012	Develop course outlines for new courses for Year 4, Semester 2 TECH 4200, TECH 4210
Jan 2012	**Implementation of Year 3, Semester 2**
Mar 2012	Senate approval for new course outlines for Year 4, Semester 2
Sept 2012	**Implementation of Year 4, Semester 1**
Jan 2013	**Implementation of Year 4, Semester 2**

Program Consultation

2004-2005	Consultation with Program Advisory Committee members for all programs in the Faculty of Trades and Technology at Kwantlen for development of Trades Diploma
Nov 2009	Needs Assessment Surveys for BTech Industry Needs Assessment survey (132 respondents) Post-Secondary Technical Education teachers (15 respondents) Current Trades/Technology students (300+ respondents)
March 2010	BTech Program Advisory Committee meeting (determine learning outcomes)
April 2010	BTech Program Advisory Committee meeting (determine new courses, names and descriptions)
July 2010	Consultation with external post-secondary, regulating and professional bodies

See Appendix D for external comments and support.

Appendices

A Program Advisory Committee Members

B TECH Course Descriptions (New Courses)

C Faculty CV's

D Comments from Program Consultations

Appendix A

Program Advisory Committee Members

BTech PAC

Internal (Kwantlen)	
Joanne Massey	Project Coordinator/CADD Dept Chair
Wayne Tebb	Dean, Faculty of Trades and Technology
Dana Goedbloed	(past member, former Dean, Faculty of Trades and Technology)
Al Sumal	Department Chair, Metal Trades
Doug Wiebe	Department Chair, Millwright
Roger Cannon	Faculty, Building Trades (Electrical)
David Fengstad	Department Chair, Appliance Servicing
Larry Rhodenizer	Department Chair, Automotive Trades
Tally Wade	Department Chair, Public Safety Communications
Elaine Decker	Director, Educational Development
External	
Adam Thorvaldson	Skills Canada Chair
Martin Lim	Tech Ed teacher, Fraser Heights Secondary,
Rick Higginson	Farrier PAC member (has a Bachelor in Forestry)
Jim Mantei	Millwright PAC member, General Manager of Van Gear
Randy Callaghan	Carpentry PAC member, Field Personnel Advisor, PCL Constructors
Brian Pichette	Welding PAC member, Welding Supervisor/Inspector, Dynamic Structures
Lloyd Stamm	Automotive PAC, Chief Executive Officer, Automotive Training Standards Organization (ATSO)
Kim Singh	Public Safety PAC member
George Cawdry	CADD PAC member (Fraser Health)
Julia Skoczylas	CADD student (BC Hydro)
Ian Vissers	(Automotive student)
Brett Griffiths	VCC, Automotive instructor
Dr. Skosnik	Exective Director of the Line Contractor's Association
Al Fitzsimmons	(Masonite Canada Ltd.)
Andy Sanghera	(welding student)
Leonard Nikolai	Tech Ed Teacher, Queen Elizabeth Secondary School
Paul Ritter	Professional Engineer (Electrical/Mechanical)
Doug Podetz	Lead, Program Standards, Industry Training Authority of BC (ITABC)
Geoff Sale	Manager, Internationally Trained Professionals Program, Applied Science Technologists and Technicians of BC (ASTTBC) Past Chair, Canadian Technology Accreditation Board (CTAB)

Appendix B

New Courses

TECH Course Descriptions

Third Year

TECH 3100 - Technology Operations (Cr: 3)

Students will apply management, budget and purchasing activities. They will conduct document management procedures, run meetings, and apply accounting and economic principles to expedite business operations. They will apply labour relations and human resources management techniques, and apply conflict resolution procedures. Students will apply effective customer service and marketing procedures, and follow the principles of business law. They will implement information technology to improve company productivity and maintain customer relationships using a data base. Students will identify global issues and how they affect business operations, conduct ecommerce and use mobile and global communications.

TECH 3110 – Digital Design (Cr: 3)

Students will follow the design process and create orthographic and pictorial hand sketches to develop design concepts. They will analyze form, function and design intent to determine the most expedient design given parameters and constraints set by budget, time, standards and codes. Students will use computer aided design and drafting software to create 3D models and 2D drawings. They will use CNC software and equipment and rapid prototyping equipment to produce working models of designs. Students will produce bills of materials and do material take-offs to estimate costs.

TECH 3200 - Professional Practice and Leadership (Cr: 3)

Students will follow regulations that govern a specific specialty area. They will apply ethics to all professional activities and identify accountability and liability issues and how they affect practice. Students will give and follow instructions, apply critical thinking and problem solving techniques to make decisions, and maintain current knowledge of technology related to a specific specialty area. They will apply interpersonal, management and peer networking techniques. Students will give presentations, and identify professional certification and credentials pertaining to a specific specialty area. Students will demonstrate willingness to keep up with organizational change.

TECH 3210 - Technology Management (Cr: 3)

Students will follow project management procedures in a manner that will apply to a research project. They will
apply time management procedures, analyze costs, follow quality assurance procedures, and manage human resources. Students will use effective communications, perform risk analysis and identify tools to

minimize risk. They will follow procurement procedures, identify project stages, integrate, implement and complete the project.

Fourth Year

TECH 4100 - Research and Innovation (Cr: 3)

Students will apply research methodologies and utilize research tools and resources to complete a research project. They will explain the history and meaning of knowledge, apply statistical analysis and innovative methodologies. Students will apply project management procedures and utilize sustainable practices to conduct research. They will document research in a format that will enable repeatable results and follow procedures to validate research. Students will identify a provable research project and write a proposal for development and implementation.

TECH 4110 - Technology Health and Safety (Cr: 3)

Students will identify regulatory bodies and their roles and Follow regulatory and legal requirements and policies. They will conduct safety meetings, maintain required safety records and investigate and report incidents. Students will develop a workplace health and safety plan and develop an Environment Management System (EMS). They will assess risk management and control techniques and apply hazard identification and control techniques. Students will apply corrective action with the intent of achieving improvement to safety and
Identify particular hazards pertinent to specialty areas.

TECH 4200 - Environment and Sustainability (Cr: 3)

Students will identify environmental issues and areas that are affected, and identify regulatory bodies and their roles. They will describe sustainability, and identify renewable resources . Students will conduct cost-benefit analysis of sustainable practices and of alternate energy sources. They will develop procedures to select appropriate renewable resources and apply sustainable practices. Students will establish the lifecycle of products and describe sustainable methods to dispose of construction waste. They will describe First Nations issues and their affect on projects. Students will identify independent power producers, and stakeholder's issues and their impact on projects.

TECH 4210 - Capstone Project in Innovations and Leadership (Cr: 6)

Students will identify a partner with a need. They will establish a project team, develop a project proposal and obtain project approval from an advisory panel. Students will identify criteria for success, conduct research and apply critical thinking and problem solving techniques to make decisions. They will apply project management skills, identify required material and human resources and raise funds. Students will apply Kaizen (continuous incremental improvements) and Business Process Reengineering (BPR) techniques for improvement in productivity and performance. They will evaluate the project using reflection techniques and document research in a format that will enable repeatable results. Students

will present the completed project to stakeholders and partner with marketing students to promote the product/result.

Appendix C

Faculty C.V.'s

Core faculty are current permanent faculty members of Kwantlen Polytechnic University who have qualifications to teach the core courses of the Bachelor of Trades and Technology Innovation. All have extensive management experience in industry at the executive and senior level, as well as extensive instructional experience. Detailed resumes of core faculty can be made available to the Ministry of Advanced Education if required.

Dr. Paul Becker: B.Sc. An engineer with and MBA and a Ph.D. (Education, University of Saskatchewan) with senior executive experience at the vice-president or higher level in electrical generation, health care and large-scale facilities management.

Dr. Ali Hassanlou: B.Eng. Industrial, M.Eng. Industrial, M.Eng. (Iran) Engineering Management (Ottawa)Ph.D. in Management (Carleton) more than 20 years industry experience in operations management in industry and with Canada's National Research Council.

Dr. Xing Liu: B.Sc. Electrical Engineering, M.Sc. Electrical Engineering, Ph.D. (Wales) an expert on remote systems monitoring and control and the engineering applications of artificial intelligence. Current involvement includes wireless gas sensing systems.

Dr. Marcelo Machado: Bachelors in Industrial Engineering, Masters in Production Engineering and Systems, Ph.D. Knowledge Management Systems Systems, Japan Advanced Institute of Science and Technology (JAIST). Expert in knowledge management techniques: knowledge strategy, mapping, acquisition, taxonomy, and transfer, Dr. Marcelo has also taught Leadership within Kwantlen's Entrepreneurial Leadership BBA program.

Brad Anderson: B.Sc. Biochemistry., M.Sc. Medical Science, MBA (UBC) with experience in Pharmaceutical research and bio-technology industries as both a researcher, a project manager and a consultant on product development.

Catriona Eigenfeld: B.Sc. Accounting, MBA (DePaul University, Chicago), CMA formerly a corporate controller in the forestry industry. She has been engaged in the development and delivery of the Strategic Leadership component of the CMA program.

Ho Yee Low: MBA (City University, Seattle), CMA, held several senior management positions with Hughes Aircraft of Canada Limited, Air Traffic Control Systems, in international business development, Operations management, accounting and finance.

Ron Messer: B.Comm, MPA Systems (UVic), MBA Finance(UBC), CA, CMA. Formerly senior manager with BC Transmission Corporation, the Vancouver Airport Authority and four provincial ministries.

Duane Radclffe: B.PhysEd., MBA in Human Resources Management (Royal Roads Univ.), formerly Director of Human Resources for Westport Innovations Inc. and the Westport - Cummins Wesport Inc

joint venture, a rapidly growing fuel cell start-up. He has considerable expertise in the selection, development and evaluation of teams working in rapidly changing knowledge based industry.

Mehdi Talwerdi: B.Sc. Computer Science and M.Sc. Computer Science and Geophysics (East Texas State University) holds extensive patents. As Project Manager for National Iranian Oil Company he oversaw the development of key systems controlling the major pipeline carrying petroleum from Iran, across Russia to Western Europe.

Vasile Zamfirescu: B. Comm. International Business, M.Sc. Industrial Engineering, MBA Operations and Marketing (U of A). Extensive industry experience at senior operations management and CEO leveling both Europe and North America.

The following four members of the Trades and Technology Faculty have certification in specific trades and technology areas complemented by a Masters in Education.

Tally Wade: M.Ed. with expertise in Public Safety Communications. Over 20 years experience within the operational communications field including positions of Communications Shift Supervisor and Operational Communications Officer with organizations such as police, fire departments and 911 call centres.

Mary Wilton: M.Ed. with Trades Qualification and expertise in Parts and Warehousing has contributed to the field of vocational education in her field of expertise and has taken a leadership role in the development of new and revised curriculum in the Parts Apprenticeship programs.

Rob Finlayson: M.Ed. with Red Seal and expertise in Metal Fabricating as well as holds a Welder level A ticket. He holds experience within his trade as well as assumes a leadership role in building industry partnerhips.

Christina Heinrick: M.Ed. with Expertise in Computer Aided Design and Drafting (CADD) Technologies is also a graduate of Kwantlen's drafting program. She provided expertise in the development of the new CADD Technologies diploma that was implemented in 2007 and also assisted Kwantlen Facilities in design work.

Appendix D

Comments and Letters of Support

Brett Griffiths	Automotive Instructor from external Post-Secondary Institution
Adam Thorvaldson	Skills Canada BC, Executive Director
Martin Lim	Fraser Heights Secondary School, Tech Ed Instructor
Rick Higginson	Farrier Program Advisory Committee
Jim Mantei	VanGear, General Manager
Ian Vissers	Kwantlen student, Automotive Apprenticeship
Randy Callaghan	PCL Construction, Field Personnel Advisor
Brian Pichette	Dynamic Structures, Welding Supervisor/Inspector
Lloyd Stamm	Automotive Training Standards Organization (ATSO), Chief Executive Officer
Dave Mitchell	Dave Mitchell and Associates Ltd., President
Geoff Sale	ASTTBC
Lane Trotter	Fanshawe College, London ON
Doug Podetz	Industry Training Authority of BC (ITABC)

Brett Griffiths, BSc, CofQ, IP, ID

Date: October 18, 2009

Ms. Joanne Massey
Department Chair – CADD Technologies
Kwantlen Polytechnic University
12666 - 72nd Ave
Surrey, B.C.
V3W 2M8

Dear Ms. Massey:

Thank you for your recent email outlining your intent to create a Bachelor of Technology (BTech) degree that would allow a Red Seal journeyperson to gain 60 post-secondary credits towards the completion of the program. I have reviewed your concept and believe it would be of incredible value to anyone who has, or is considering, a career in a Red Seal trade. I can see how this degree would expand opportunities for trades people and provide some with the needed pre-requisites to pursue graduate studies.

As someone who holds both a Bachelor of Science degree, and a Red Seal endorsement for the trade of Automotive Service Technician I can appreciate the extra time required and financial pressure incurred to obtain a degree. If the Bachelor of Technology degree existed when I decided to pursue my degree, I would have likely completed my program through Kwantlen Polytechnic University rather than UBC. I believe that your BTech program will encourage more people to enter red seal trades with the knowledge that the skills they have gained in their trade can also be applied towards a degree. I personally know the disappointment of realizing the four years I spent obtaining my Red Seal trade would not result in any credit towards a degree.

I believe the degree program you intend to create will not only benefit existing trades faculty by providing a shorter route to the needed pre-requisites for a graduate degree, but also provide incentive for future students to enroll in trades training with the secure knowledge that the completion of a degree is within reach in a short period of time. I commend you for developing a program that will have a positive impact on so many existing and future trades people.

Sincerely,

Brett Griffiths
Instructor - Automotive Technician Program

Skills Canada BC Chapter
3777 Kingsway
Burnaby, BC
V5H 3Z7
604-432-4229
Fax: 604-433-1241

November 30th, 2009

C/O: Joanne Massey
Dept Chair - CADD Technologies
College of Trades and Technologies
Kwantlen Polytechnic University
Phone: 604-598-6120

To whom it may concern,

Please accept this letter of support for the proposed Bachelor of Technology that Kwantlen University is developing.

Coming from the perspective of someone who has been through both Trade School and a University degree, it is my feeling that one of the fundamental reasons for students entering post-secondary educations and making the decision to not go into vocational education is the perception by students and parents alike, that there is no opportunity to go beyond and get higher levels of education. This is in part due to there being little opportunity for transfer credit. My personal experience includes re-doing identical courses for both my vocational education and my university degree.

It is a very large undertaking, but it is my hope that this is a first step towards extending transfer credit between trades/technology and academic programs.

With best regard,

Adam Thorvaldson - BEd(TTED),Journeyperson
Executive Director
Skills Canada BC
3777 Kingsway
Burnaby, BC
Canada V5H 3Z7
Direct : 604-432-4362
Fax: 604-433-1241
adam@skillscanada.bc.ca
www.skillscanada.bc.ca
www.skillscanada.com
www.worldskills.org

FRASER HEIGHTS SECONDARY
16060 – 108th Avenue
Surrey, B.C., V4N 1M1
Telephone: 582-9231 Fax: 582-9268

Kwantlen Polytechnic University
12666 - 72nd Ave
Surrey, B.C.
V3W 2M8

Ms. Joanne Massey
Department Chair – CADD Technologies

Dear Ms Massey:

It was very nice to see you out at the BCTEA Conference held in October in Maple Ridge. I found your presentation outlining your intent to create a Bachelor of Technology Degree that would allow a Red Seal journeyperson to gain 60 post-secondary credits towards the completion of the program very interesting.

I have talked to several other shop teachers about your idea, and believe it would be of incredible value to our students considering a career in trades. The option to complete a Degree may help to encourage students and their parents to consider a trade as a career. Also, having a Degree option in the trade area may help us increase our enrolment in our secondary shop classes. The perceptions of trades may change if your Programme goes ahead.

I have also talked to our school counsellors, and they also agree that your Degree Programme would be a benefit to students. As a local community University, you offer many other benefits that other institutions do not. Students could continue their education without having some of the other associated costs.

Please keep us informed as to the status of this Programme. We hope that it receives approval from your Senate.

Sincerely,

Martin Lim

Nov. 28/09.

Kwantlen Polytechnic University
12666 – 72nd Ave.
Surrey, B.C. V3W 2M8

Re: Proposed Bachelor of Technology

Dear Joanne Massey;

I'm writing this letter to express my support for the proposed Bachelor of Technology Degree.
The development of this degree program will create an opportunity for Trade program graduates which have never existed before. As it stands today the only option available to a trade graduate is to return to university and spend another four years securing a degree.
It may only be a small percentage of trade graduates that decide to go on but it is very important that this option is available. By offering this program you will open a door for continuing professional development for these graduates.
I wish you continued success in bringing this program to fruition.

Sincerely

Rick G. Higginson
CJF. Dip. T. Forestry, Dip. T. Fisheries, Wildlife and Parks

VANGEAR

BUILDING TRUST ONE GEAR AT A TIME
SINCE 1952

MEMBER AGMA SINCE 1965

November 23, 2009

Kwantlen Polytechnic University
12666 - 72nd Ave
Surrey, B.C.
V3W 2M8

Dear Ms. Massey,

Thank you for your recent information regarding the intent to create a Bachelor of Technology (BTech) degree at the recent program advisory committee meetings. I have reviewed your concept and believe it would be very valuable to anyone who has, or is considering, a career in a Red Seal trade. I can see how this degree would expand opportunities for trades people and provide some with the needed prerequisites to pursue graduate studies.

Our company VanGear has many Kwantlen graduates that have served their apprenticeship and have received their red seal certificates in their chosen trades. This will give them an opportunity for further growth within our organization.

As someone who holds both a Red Seal endorsement for the trade of Machinist and Millwright I can appreciate the extra time required to obtain a degree. If the Bachelor of Technology degree exists and I decide to pursue my degree, I would likely complete my program through Kwantlen Polytechnic University rather than UBC. I believe that your BTech program will encourage more people to enter Red Seal trades with the knowledge that the skills they have gained in their trade can also be applied towards a degree. I would be disappointed if the four years I spent obtaining my Red Seal trade would not result in any credit towards a degree.

I believe the proposed degree program would provide incentive for future students to enroll in trades training with the secure knowledge that the completion of a degree is within reach in a short period of time. I commend you for developing a program that will have a positive impact on so many existing and future trades people.

Sincerely,

Jim Mantei

API Spec Q1 Registered 8th Edition
14551 BURROWS ROAD
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FACSIMILE: 604 270 1433
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www.vangear.com
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API ISO/TS 29001 29001:2003

Kwantlen Polytechnic University
12666-72nd Ave
Surrey, BC
V3W 2M8

Proposed Bachelor of Technology degree

To whom it may concern,

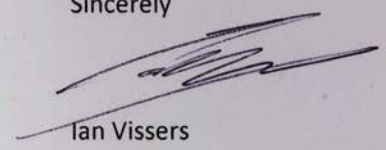
Red Seal certification in automotive is something I am about to acquire. I am currently attending automotive level four at Kwantlen Polytechnic University – Cloverdale Campus. I also have my drafting certificate as well as many other prerequisites required to be accepted to the proposed Bachelor of Technology degree program. The pursuit of an advanced career in automotive is something I am constantly working toward. I have also considered a higher education leading to careers not related to trades. The proposed Bachelor of Technology degree program would be an asset in whatever direction I choose.

Most skilled trades require over four years of commitment before certification. This commitment process could also be referred to as an investment. It is very demanding in that trades people invest tremendous amounts of effort and funds compared to what is received. Many trades also appear to have limitations at which there is no further progression. Potential trades people may decide against entry into a trade based solely on this seemingly lacking investment returns. Credits toward a bachelor's degree would surely stimulate trades entry.

We as trades people have and will continue to invest in ourselves. Most cannot afford to return to a college or university for 4 or 5 more years of education for a bachelor's degree. Many trades people will require a higher level of education to achieve their goals. I would be overwhelmed with enthusiasm if my Red Seal trade certification along with as little as 5 semesters granted the equivalent of four or five college or university years in the form of a bachelor's degree.

I strongly believe with acceptance and development of this proposed program, current and future trades people will benefit. I would like to thanks all who are involved with developing this proposal for your efforts. I would also like to thank anyone with future involvement in advance.

Sincerely



Ian Vissers

December 3, 2009

Via: Mail

Kwantlen Polytechnic University
12666 - 72nd Ave,
Surrey, BC V3W 2M8

To Whom It May Concern;

Re: PROPOSED BACHELOR OF TECHNOLOGY

Thank you for your recent email outlining your intent to create a Bachelor of Technology (BTech) degree that would allow a Red Seal journeyperson to gain 60 post-secondary credits towards the completion of the program. I have reviewed your concept and believe it would be of incredible value to anyone who has, or is considering, a career in a Red Seal trade. I can see how this degree would expand opportunities for trades people and provide some with the needed prerequisites to pursue graduate studies.

As someone who holds a Red Seal endorsement for the trade of Carpentry, I can appreciate the extra time required and financial pressure incurred to obtain a certification.

I believe that the direction of this degree, with relevant trade experience as part of the recognized background, will add value to the employer and to that of the credential. I commend you for developing a program that will have a positive impact on so many existing and future trades people.

If you should have any questions, please do not hesitate to contact the undersigned.

Yours truly,

PCL CONSTRUCTORS WESTCOAST INC.

Randy Callaghan
Field Personnel Advisor
WRITER'S DIRECT LINE 604-241-5346

RJC/ss

PCL CONSTRUCTORS WESTCOAST INC.
#310 – 13911 Wireless Way, Richmond, BC V6V 3B9
Telephone: (604) 241-5200 ☎ Fax: (604) 241-5301

DYNAMIC STRUCTURES

December 15, 2009

Kwantlen Polytechnic University
12666 – 72nd Ave,
Surrey, BC V3W 2M8

To Whom It May Concern:

I am writing this letter to give my full support to Kwantlen Polytechnic University's proposed Bachelor of Technology Degree Program. I believe it will be of great value to any Red Seal Journey Person who would like to advance their career. The fact that they would receive post secondary credits for time spent obtaining their Red Seal is most encouraging. I also believe it will lead to more people going into the trades knowing they can receive a degree in their field.

Yours truly,

Brian Pichette
Welding Supervisor/ Inspector
Dynamic Structures
604 468-7617

Automotive Training Standards Organization

Unit # 1 - 8980 Fraserwood Court
Burnaby, BC, Canada V5J 5H7
Telephone (604) 419-3626
Fax (604) 419-0299
www.autoapprentice.com

December 1, 2009

Kwantlen Polytechnic University
12666 - 72nd Ave
Surrey, B.C.
V3W 2M8

To Whom It May Concern

Re: Bachelor of Technology Degree

The creation of a Bachelor of Technology (BTech) degree that recognizes the educational value of a Red Seal certification as 60 post-secondary credits towards that degree is truly supporting the concept of lifelong learning.

It is appropriate that a degree in technology would have as its basis, actual experience as a technician. This recognition will encourage more people to consider entering red seal trades knowing that the skills they have gained in their trade can be applied towards gaining a degree. For some trades people this will also provide opportunities to pursue graduate studies.

As a member of both the Automotive Service Technician and Partsperson PACs at Kwantlen, I am fully in favour of developing a program that will have a positive impact on so many existing and future tradespeople.

Sincerely,

Lloyd Stamm
Chief Executive Officer

DAVE MITCHELL and ASSOCIATES LTD.

P.O. Box 64618
1942 Como Lake Avenue
Coquitlam, B.C. V3J 7V7
Canada

Phone: (604) 812-8951
Fax: (604) 552-8951
Email: dwmitchell@telus.net

January 7, 2010

Kwantlen Polytechnic University
12666 - 72nd Ave,
Surrey, BC
V3W 2M8

Re: Proposed Bachelor of Technology

To Whom It May Concern:

I am writing to you both as a member of the Public Safety Communications Advisory Committee as well an owner of a communications consulting firm to express my support for the proposed Bachelor of Technology degree. It is my strong belief that enhancing the opportunities for individuals working in the technology field to achieve additional accreditation will enhance their ability to perform work of greater value. In addition to enhancing the skill set for those working in this field, the addition of a certification such as being proposed by Kwantlen Polytechnic University will increase their visibility and employability by firms such as ours.

Our consulting firm is employed in much of Canada working principally with emergency services with regard to technology procurement and implementation as well as performance audits and quality assurance programs. In the ten years our company has been operating, the demand for services has increased in complexity and scale and this demands an ever increasing level of training and experience.

At the same time, the issues of ever-tightening standards of services and a greater scrutiny to ensure value for money require our firm and our consultants to continually broaden their skills. This requires a great deal more ability to research, write and present ideas and this broader suite of knowledge is something that I feel is enhanced with a degree program. Quite simply,

students that graduate with these skills will succeed to a higher degree and will deliver better value.

Thank you for considering this program, and if it would be helpful, I would be happy to speak with you further.

Yours truly,

Dave Mitchell
President

To: "'Joanne Massey'" <Joanne.Massey@kwantlen.ca>
From: "Geoff Sale" <geoffsale@uniserve.com>
Date: 06/09/2010 10:19AM
Subject: RE: BTech - Please review attached, and Next Meeting Date

Hi Joanne,

I've been looking more closely at the structure of this program since you called, and I have a couple of questions re. the flowchart you included with the last email. To be better informed re. the likelihood of this program qualifying for a National Accreditation through CTAB (or whatever re-incarnation is in place when the time comes), I will need to see more details about the A), B) and C) options which comprise the first two years. I'm not entirely sure that these three options are 'OR', not 'AND', as I have some reservations re. the equivalency of 20 weeks of Red Seal Trade class time vs. 60 approved post-secondary credits. I had believed that Red Seal trades required 4 years, with at least 10 classroom weeks per year. So, right now I'm more comfortable with B) and C) than I am with A), although the Diploma at the end of year 2 may be a stretch if A) is indeed a complete option in and of itself.

Educational Agencies are challenged when trying to show that **any** program is CTAB-accreditable if all students do not take the same basket of courses which result in a graduation, be it diploma or degree. I can see problems with the less-technical trades (eg, carpentry) being included in the mix.

All that said, we may still have a case for an accreditation at the Technician level, given that some technical strengths are provided by at least some of the trades: Electrical, Mechanical, etc. We will need to fully review the whole program against the NTB to be sure that we have a case for CTAB to consider an application, and we should try to do that well prior to the PAC meeting to ensure you and I are on the same page!

Lastly, I may just apply for this BTech program myself!!! I've always meant to get a degree, having started out at CMR de St. Jean with the RCN in the mid-1960's and completing nearly 3 years of a 5 yr degree in EE, quitting before I got to RMC for the last 2 years. I then went to night school with BCIT for 12 yrs and got a Diploma in 'Industrial Management', which actually didn't exist as a program at BCIT or anywhere else in 1985, and my certificate says 'In Accordance with National Standards', of which there were none at the time! But I did get the first Governor General's Silver Medal for Part Time Studies Graduates from BCIT, so it wasn't a total loss!! And it qualified me to apply to become a member of (then) SETBC, starting a long and rewarding membership experience!

Thanks

Geoff

Geoff Sale, AScT
Past Chair, Canadian Technology Accreditation Board
Canadian Council of Technicians and Technologists (Ottawa, Ont.)
Manager, Internationally Trained Professionals Program,
Applied Science Technologists and Technicians of BC
geoffsale@uniserve.com
H 604 521-5059 C 604 488-4559

To: Joanne Massey <Joanne.Massey@kwantlen.ca>
From: Lane Trotter <ltrotter@fanshawec.ca>
Date: 08/15/2010 01:21PM
Subject: Re: (From Joanne Deno) - Bachelor Degree Proposal

Joanne,

I have had a chance to review the Program Concept document for the Bachelor of Technology in Innovation and Leadership.

Here are a couple of observations:

- The proposal has similarities to BCIT's Bachelor of Technology in Technology Management in the program structure and the access into the degree portion (or degree completion route) although this proposal is specifically aimed at individuals with a trades background and

  BCIT's program provides a route for those individuals with a trades qualification who have a diploma.

- Providing holders of a trades Read Seal IP, Trades Certificate or an individual with 60 post secondary credits to have a route to a degree is innovative and breaks down barriers that create "siloization" between trades and professional careers. Alasdair McIntyre (

  MacIntyre, A. (1997). The Nature of the Virtues. In R. Crisp and M. Slote (Eds.), *Virtue Ethics* (pp. 18-40). Oxford: Oxford University Press.) is very clear that enhancing professional practice enriches society as long as that practice has appropriate depth and breadth.

One other point that I would like to raise is around the structure shown in the Flow Chart. The Flow Chart itself is fine, but the question that the Flow Chart raises is around the equivalency of the three groups of perspective groups eligible for entry into the third year of the degree. BCIT indicates that for the Bachelor of Technology in Technology Management, applicants must have a diploma. This provides the point of equivalency between trades and technology based program credentials and is based on the skills, abilities and knowledge that a diploma holder should possess. This latter point needs to be addressed to show the equivalency.

I hope this helps.

Cheers,

Lane

Lane D. Trotter, Ed.D.
Senior Vice President, Academic
Fanshawe College
1001 Fanshawe College Blvd.
P.O. Box 7005
London, ON N5Y 5R6
(519) 452-4462
ltrotter@fanshawec.ca

REVIEW SUMMARY
ON
KWANTLEN POLYTECHNIC UNIVERSITY
BACHELOR OF TECHNOLOGY IN INNOVATION & LEADERSHIP

by

Doug Podetz
Industry Training Authority
Lead, Program Standards

This program concept document review will highlight key factors related to the development and delivery of a Bachelor of Technology in Innovation & Leadership at Kwantlen Polytechnic University. This review paper will discuss factors within the document which have provided adequate written material to support a degree program; as well the paper will also address key issues which may require changes or additional information.

A numbers of factors contribute to the success or failure of a technology degree program. Based upon my experience in trades, technology, undergraduate and graduate programs I will outline what I see as key factors which should be considered when augmenting a university degree program with technology.

The term “success” can be applied in many different contexts. For example, success from the Oxford Canadian Dictionary is defined as “the accomplishment of an aim; the attainment of wealth, fame or position; a thing or person that turns out well.” In this context the concept of success will refer to the ability to sustain the degree program.

Sustaining a Degree program

The sustainability of a program is based on the synergy involving these key factors:

- Enrollment
- Program names
- Program content
- Course descriptions, course credit and degree requirements
- Community support
- Employment
- Cross credit towards other programs
- Course content relates to an industry need
- Availability of teaching faculty and teaching qualifications related to the program
- Prior credit and cross credit from other programs
- Internal support within the university

The above factors are not listed in any priority of importance but are key factors when considering the development, planning, implementation, maintenance and support of a degree program.

The program concept document which I reviewed addresses many of the above noted key factors. The document accomplishes a comprehensive explanation on many of these factors. There are also factors which may require additional content in order to ensure the reviewer that the proposal has a high degree of sustainability.

Setting up a degree program requires long term planning, implementation, maintenance, as well as industry support. Sustainability of a degree program must demonstrate the potential to attract learners and address labour market demands. Evidence must be provided to indicate that there will be an audience to enter the program year after year. A large percentage of candidates which enter the program must be retained over the duration of the degree program. Sustainability must also demonstrate the ability of having the work environment support the graduates. There must be businesses within the community, British Columbia, Canada, as well as, internationally who are willing to hire the graduates. Graduates must have an adequate knowledge and skill level to adapt to the work environment in an effective and efficient manner. From a business perceptive sustainability is captured through having graduates who are adaptable, able to anticipate and manage variability and earning a profit for the employer.

The greatest influence on sustainability is whether employers are attracted to hiring candidates who graduate from this proposed program. Although I did not get a chance to review the analysis report (Appendix F) I would judge that based on the background experiences related to trade certification the majority of candidates would be in high demand for managerial employment positions.

The reviewers of this paper also need to understand what is driving the need for this program. This proposed program falls into a category of anticipated technological demand. Industry has stated on many occasions that candidates having a trade background, technological and managerial experiences are in high demand.

The strength of this model is it recognizes the level of importance based on the candidate's successes in completing a certification in the trades. The proposed program structure provides a level of recognition through trade course credit towards a technology degree program. Designing a degree program which captures candidates who have these experiences is essential in achieving the intended vision of this degree program. Canadian society has in the past not recognized the value in providing transitional educational opportunities for individuals who have completed trade certifications. Accepting these experiences as essential elements will produce a highly qualified managerial leader in our community. This proposal emphasizes the importance of having a trade background prior to enrolling in the program. The design structure outlined in the proposal should be noted as a strong factor in supporting the sustainability of the program.

Kwantlen services the communities of Richmond, Delta, Surrey, Langley and Maple Ridge. Kwantlen has the potential to attract candidates from other parts of Canada as well. Without students, a program cannot operate. Program developers generally agree the greatest problem facing new programs is the recruitment of qualified

candidates. Kwantlen has access to several thousand certified trade candidates throughout Canada. Keep in mind good marketing practices are a key element to program growth.

The name of the program is also a crucial element when considering the sustainability of this program. Usually candidates glance and acquire there first impression from the title. Using the title Bachelor of Technology degree suits the vision of the program and is appropriate wording for the title. The additional wording in the title – “Innovation and Leadership” should be reviewed. It is my belief a phrase after the Bachelor of Technology or a word/phrase prior to “Technology” which is specific to the intended vision of the degree program is required. Title explanations should be specific and refer to the intended outcome of the program. General wording in a title tends to confuse readers. A phrase or word capturing some aspect of management would provide stronger support to sustaining the program. Using the word “Leadership” in the title is attractive and should remain in the title.

The choices of program courses are excellent and will be congruent with the intended vision of the program. I believe the intended vision of the program is to provide the necessary knowledge base so candidates are successful in management roles within the technology environment. There is one additional element to be considering when developing this program. Management training should encompass the abilities to understand and perform business accounting. I would recommend an additional course or courses from the School of Business which would provide a knowledge base that would address the intended vision of the program.

Uses of existing programs from other departments, uses of faculty who have acquired training in other departments are all excellent opportunities to increase the degree of sustainability. All of these factors are addressed in the proposal.

Concluding Remarks

In conclusion, apart from some recommended changes I would encourage strong support for the Bachelor of Technology degree program at Kwantlen Polytechnic University.

APPENDIX R

Experiential Learning

NOTES

In this featured project, CADD students were asked by the Welding program to design a Vise using 3D software.
Students then built the vise in the Millwright shop
-
In industry, designers do not always get to experience, or even see, their designs being built or manufactured.

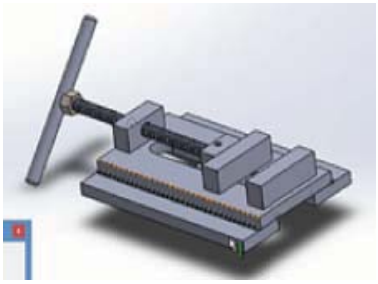
CADD Vise Project

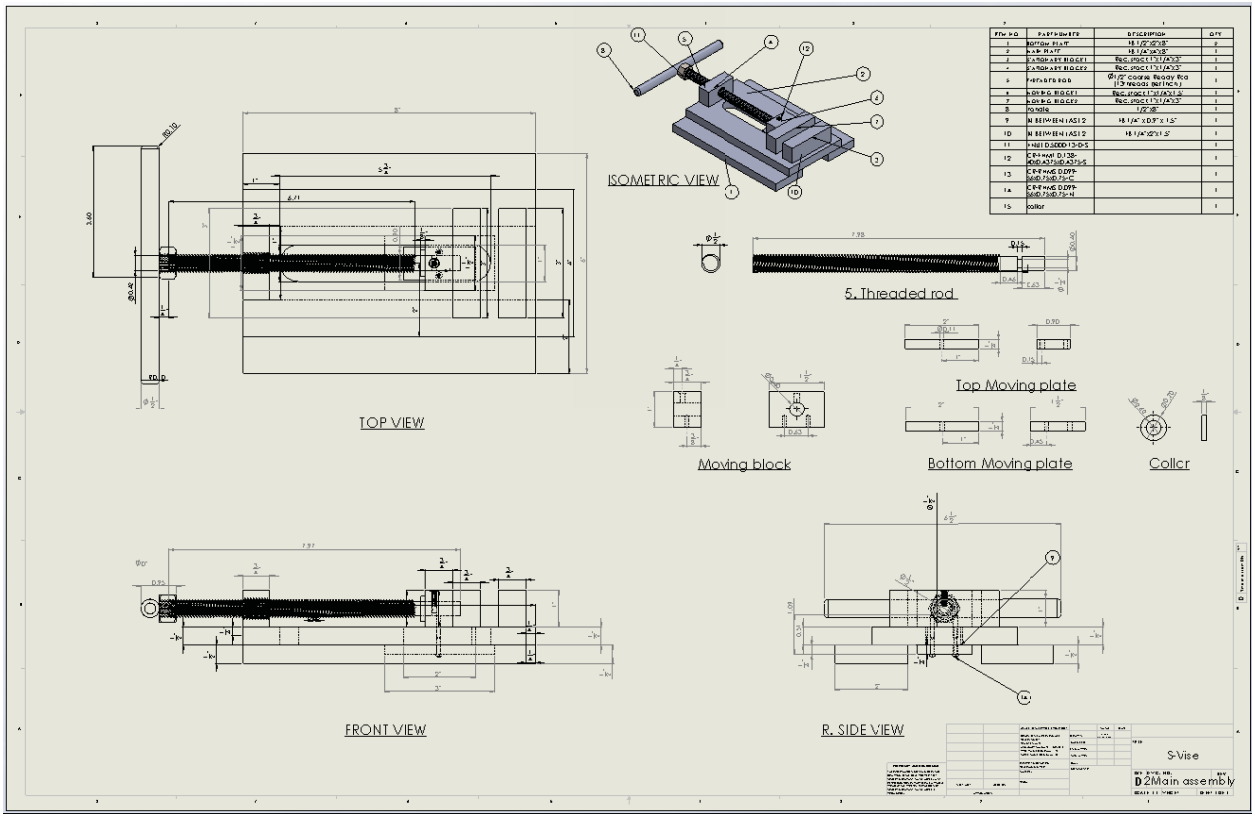
Welding students need to use a vice to hold the coupons that they create while learning to weld It would be good to have one in each welding booth (40+) but that is expensive.

CADD students were asked to design a vice that could be made from stock materials:

- Flat bar
- Rectangular stock
- Ready rod (threaded)
- Threaded nut

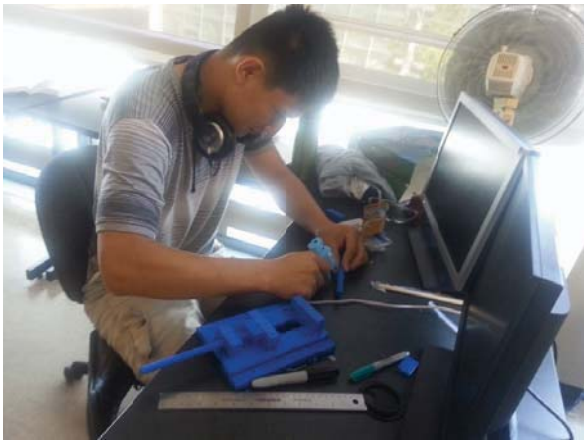
CADD students produced a drawing using 3D software

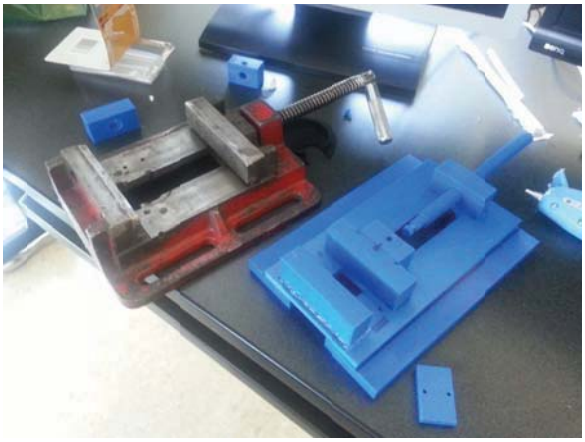


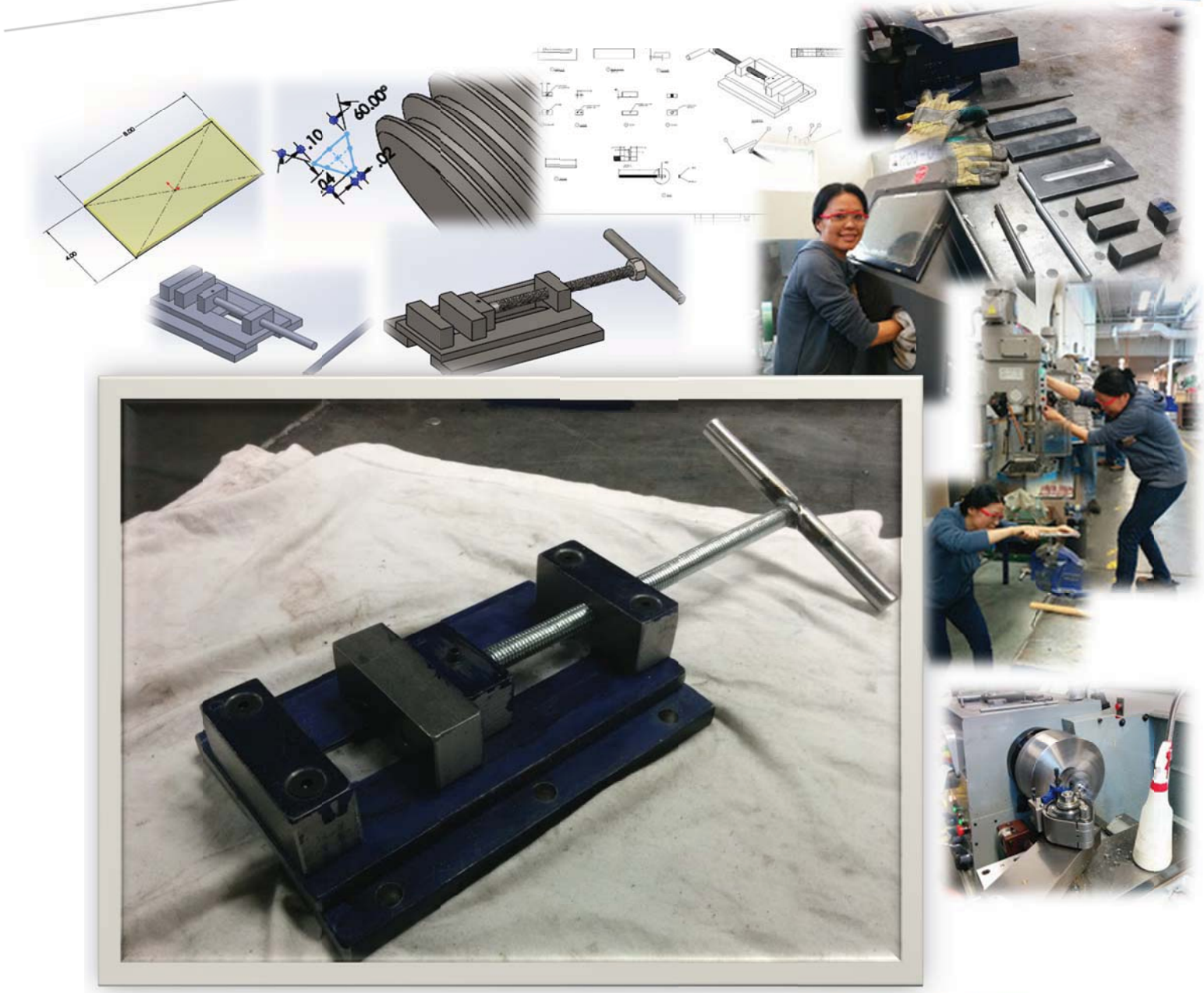


CADD students met with Welding instructors to review the design

CADD students printed and assembled an operating model on the 3D printer







FINAL PROJECT-VISE-

CADM1210 COMPORNENT ASSEMBLLY AND DETAILS

KWANTLEN POLYTECHNIC UNIVERSITY

INSTRUCTOR JOHN SINGH/ JOANNE MASSEY

YASUKO NOMOTO

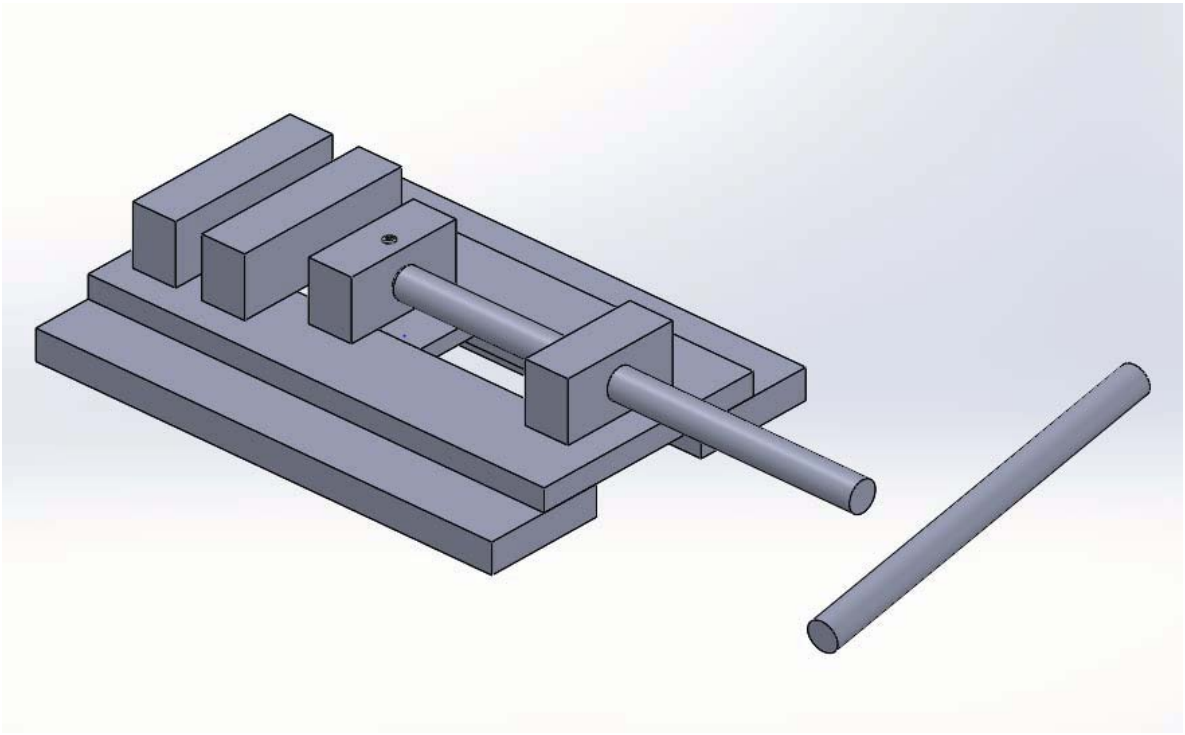
Table of Contents

DESIGN DEVELOPMENT

DESIGN DAY 1(15JULY)

- Lecture
- Modeling from the giving work instruction and the prototype
- Documentation

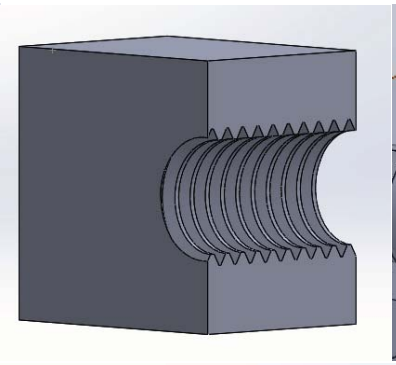
DAY 1 Modeling

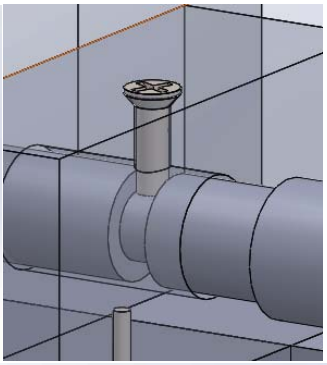


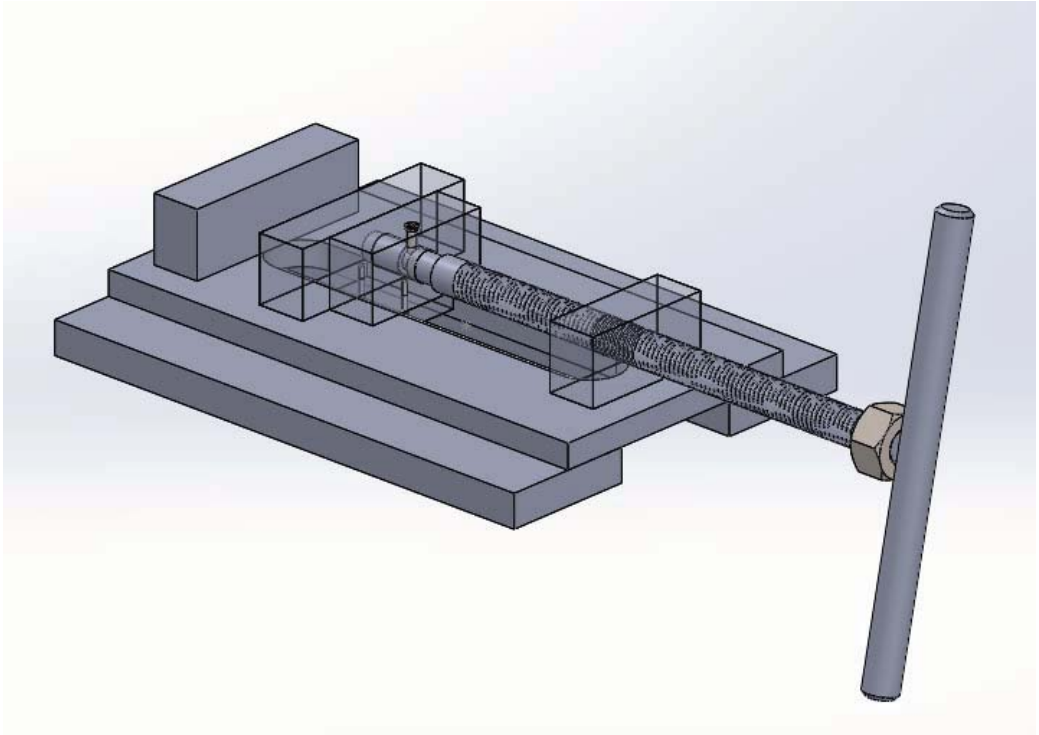
DESIGN DAY 2(21JULY)

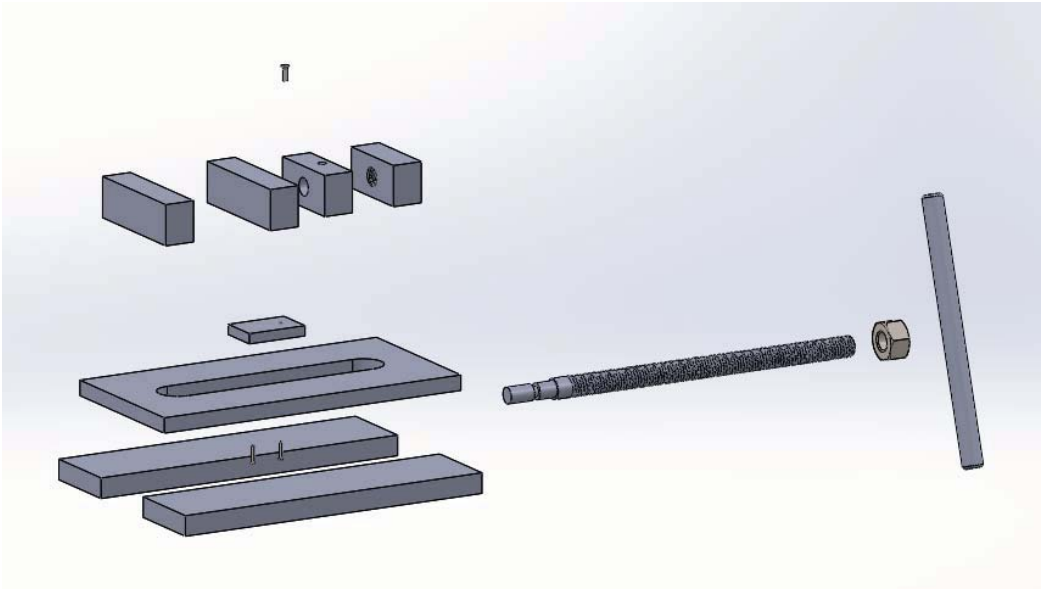
- Detail modeling (Thread, Mechanical Mate, Screws Assembly, Exploded View)
- Drafting
- Documentation

DAY 2 Modeling





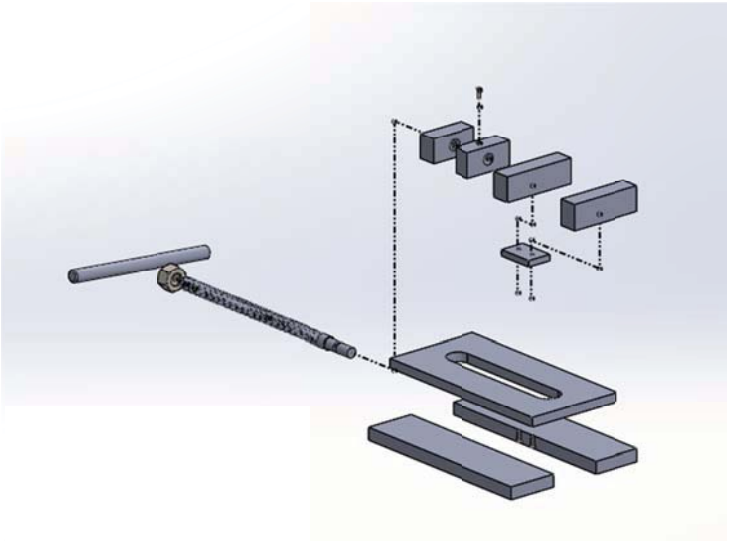




DESIGN DAY 3 (27JULY)

- Drafting Route Line
- Budget Sheet
- Documentation

DAY3 Modeling



Render View

MATERIAL TAKE OFF (BOM)

RATE 29JUN15 1.2893

ITEM	DESCRIPTION	MATERIAL	UNIT	$/UNIT	NAME	SIZE(in.)	QTY.	USD	CAD	SUPPLYER
*FB 1/2 x2		A-36 STEEL	24 inch	10.6	**BASE PLATE	8 inch	2	3.53	4.52	METALS DEPOT
*FB 3/8x4		A-36 STEEL	24 inch	12.74	TOP PLATE	8 inch	1	4.25	5.44	METALS DEPOT
*FB 1/4x1		A-36 STEEL	24 inch	2.84	SLIDER	1.5 inch	1	0.18	0.23	METALS DEPOT
*REC. STOCK 3/4x1	FB	A-36 STEEL	24 inch	11.88	STOP	3 inch	1	1.49	1.90	METALS DEPOT
*REC. STOCK 3/4x1	FB	A-36 STEEL	24 inch	11.88	GUIDE	2 inch	1	0.99	1.27	METALS DEPOT
*REC. STOCK 3/4x1	FB	A-36 STEEL	24 inch	11.88	COLLAR	2 inch	1	0.99	1.27	METALS DEPOT
*REC. STOCK 3/4x1	FB	A-36 STEEL	24 inch	11.88	CLAMP	3 inch	1	1.49	1.90	METALS DEPOT
ROD DIA 1/2	COARSE THD	STAINLESS	13 inch	67.11	ROD	8 inch	1	41.30	52.86	MSC
ROD DIA 1/2		A-2 STEEL	36 inch	49.43	HANDLE	3- 3/8	1	4.63	5.93	BOLT DEPOT
MACHINE SCREW #6	FLAT HEAD 3/8L	STAINLESS	1	0.06	SCREW	1/8Ø 3/8 LONG	1	0.06	0.08	BOLT DEPOT
MACHINE SCREW #6	FLAT HEAD 7/16L	STAINLESS	1	0.06	SCREW	1/16Ø 7/16LONG	2	0.12	0.15	BOLT DEPOT
NUT 1/2	THREDED	STAINLESS	1	0.35	NUT	1/2	1	0.35	0.45	BOLT DEPOT
TOTAL								**$ 59.37**	**$ 75.99**	

Preparation

*FB, stock, rod cutting
**Base-plate hole
by instructor

Cutting Machine, Drilling Machine (for long hole of the base plate), Lathe machine at the Millwright Shop

SAFETY CONSIDERATIONS

- Wear safety glasses and steel toe shoes
- Listen the instructors directions
- Do not wear loose clothing, accessories. Watch ring, or other staffs
- Do not leave machines running unattended. turn power off
- Make hair tight

BUDGET

Material	$75.99	See BOM
Labor	$225.00	15(h)x15($)
Total	**$300.99**	

SHOP PROGRESS

PROTTYPE MODEL

SHOP DAY1 (10AUG)

- De-burring
- Glass Blaster
- Layout with Blue Fluid

DE-BURRING

MATERIALS	VISE, GROVE FILE	COTTON SAND-PAPER
		
MILLWRIGHT SHOP in KPU	REMOVING SHARP EDGE	REMOVED SHARP EDGES
		

GLASS BLASTER

GLASS BLASTER MACHINE	INSIDE OF THE MACHINE	OPERATING
		

BEFORE	AFTER
	

LAYOUT WITH BLUE FLUID

STEEL BLUE LAYOUT FLUID	PUT THE FLUID ON STEEL	
		

SCRIBER, CALIPER, CENTERPUNCHER, HAMMER	MARKING	PUNCHING
		

SHOP DAY2 (11AUG)

- Layout with Blue Fluid (Continue from day1)
- Drilling hole

DRILLING

DRILLING MACHENE	DRILLING	CUTTING FLUID(OIL)
		
DRELL FOR CHANFER AND HOLE	OPERATING	CHAMFERED HOLES
		

SHOP DAY3 (13AUG)

- Drilling hole
- Tapping thread

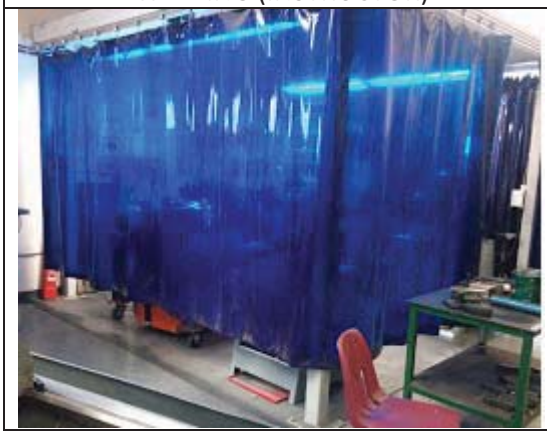
TAPPING THREAD

THREAD FORMING TAP PLUG	WORKING	THREADED HOLE
		

SHOP DAY4 (14AUG)

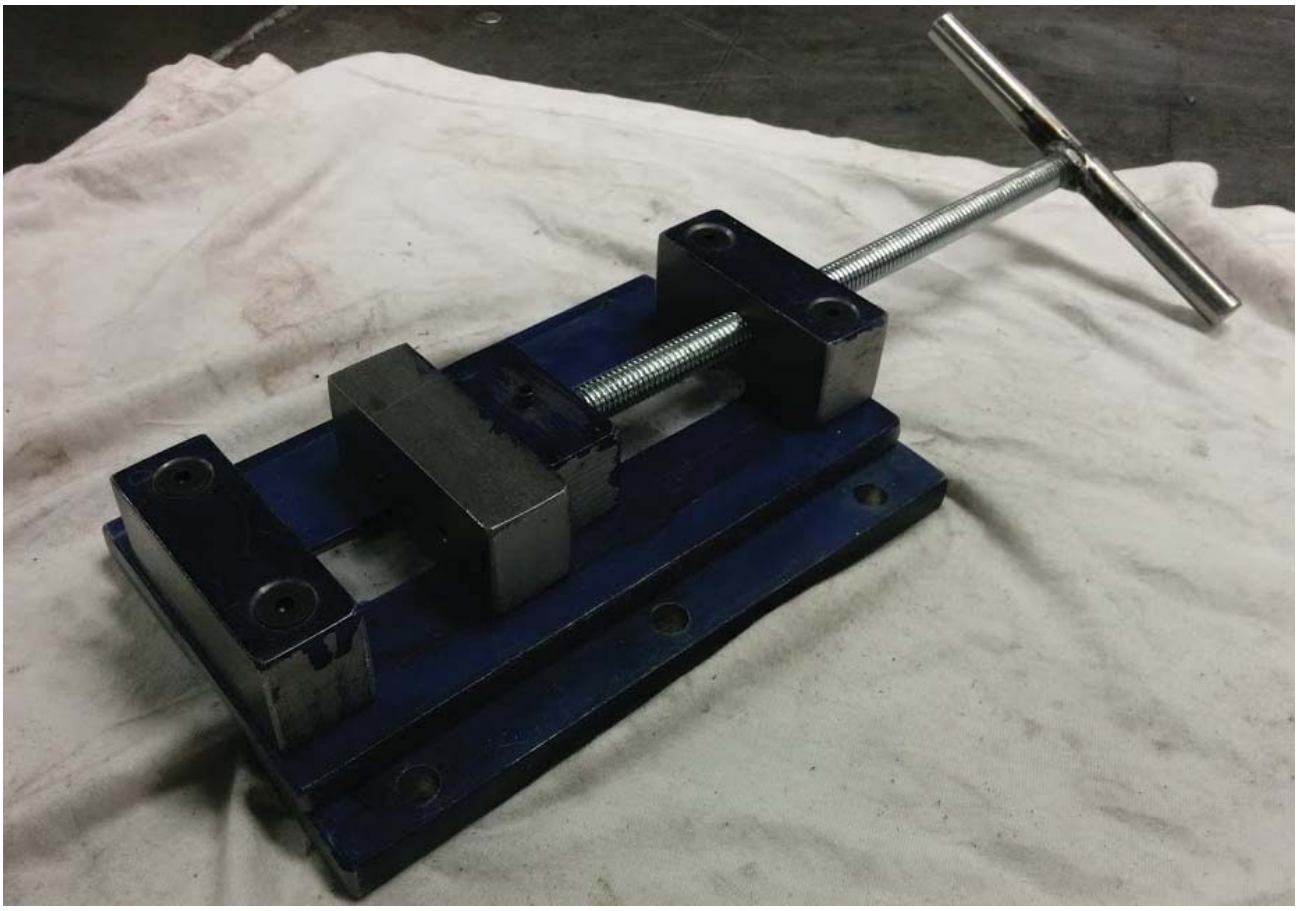
- Drilling hole
- Welding (just watching)
- Assembly

WELDING

WELDING (INSTRUCTOR)	WELDED CONNECTION
	

ASSEMBLY

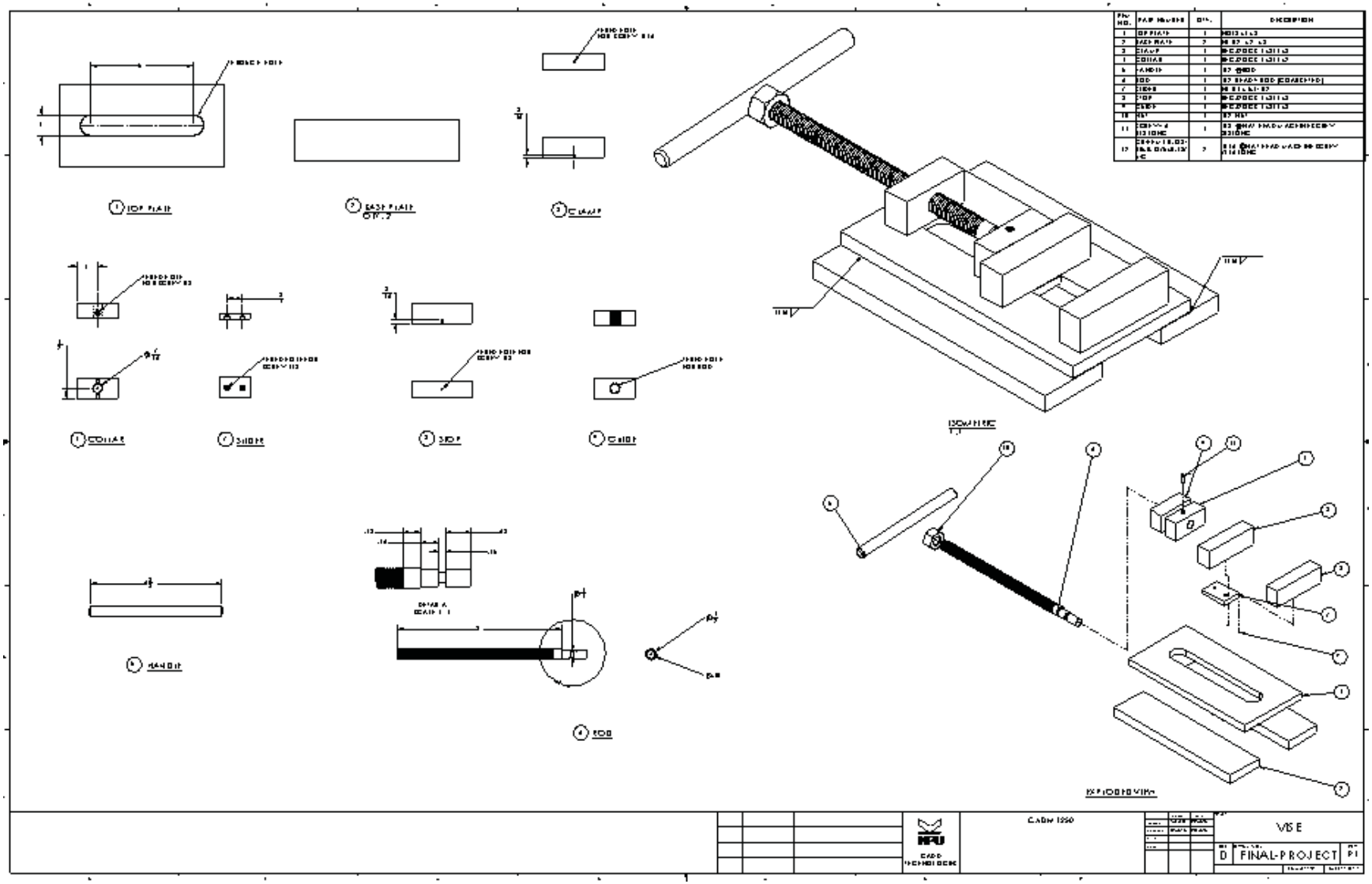
COMPLETED!!!



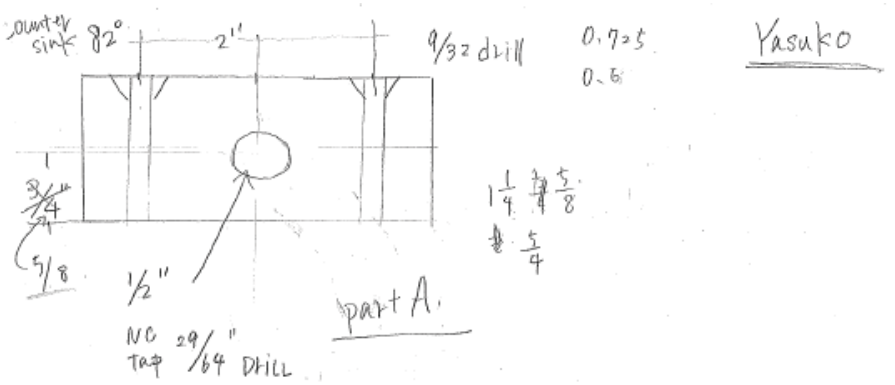
Perfect fit to devices at home

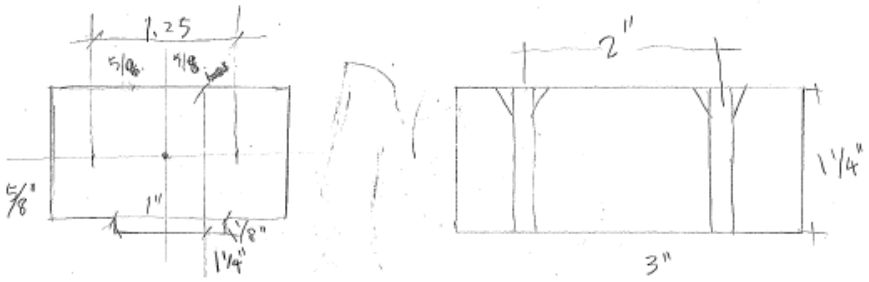
DRAWINGS

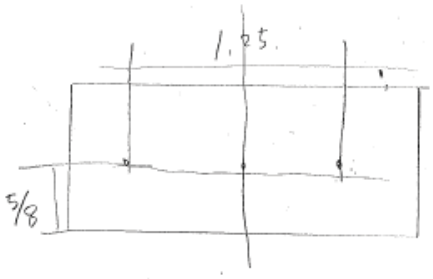
PLAN DRAWING

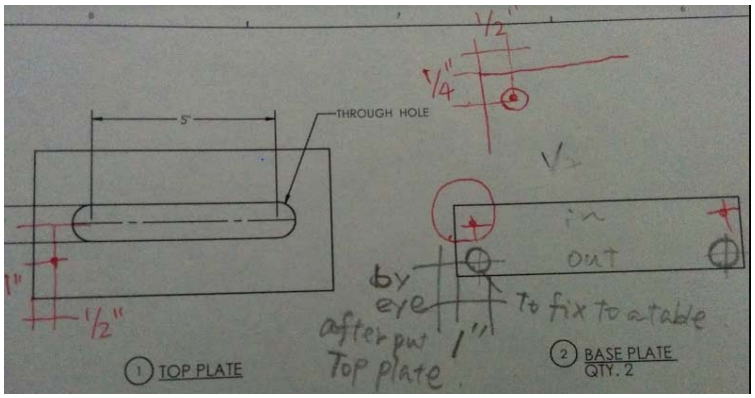


DESIGN CHANGE AT THE SHOP

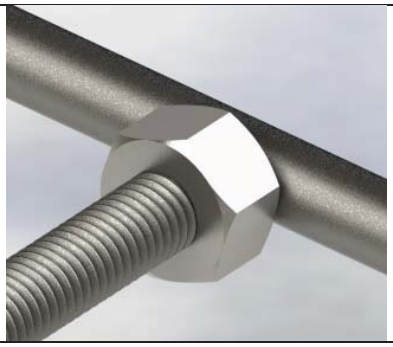
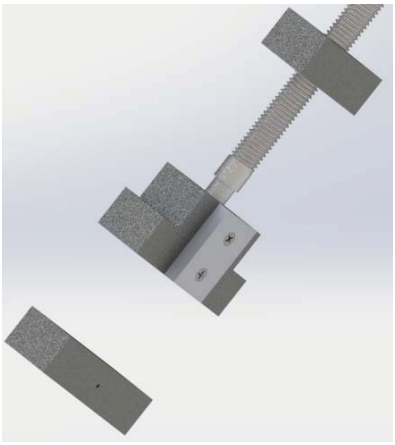
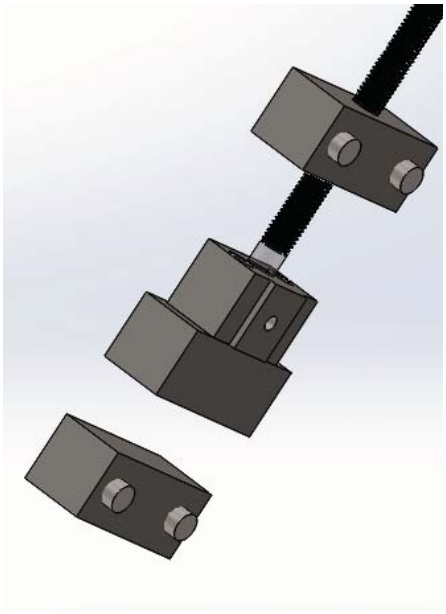
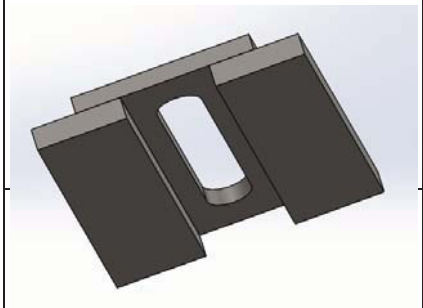
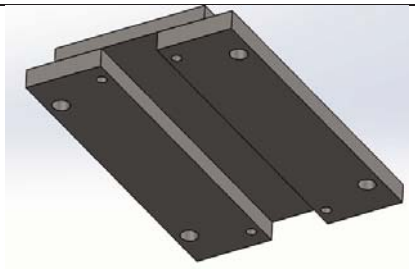
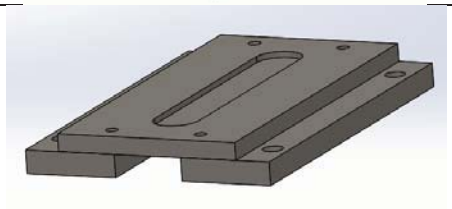




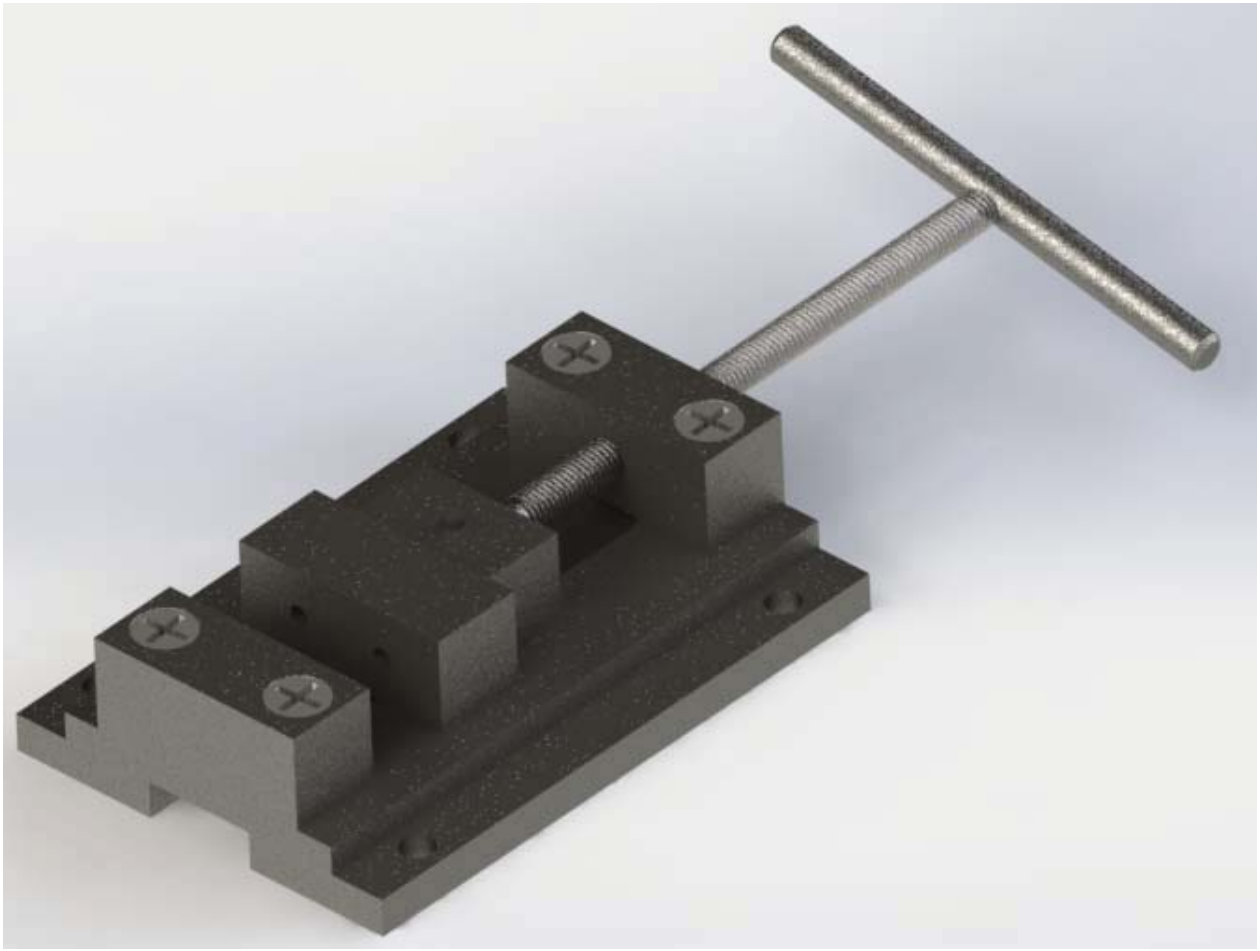


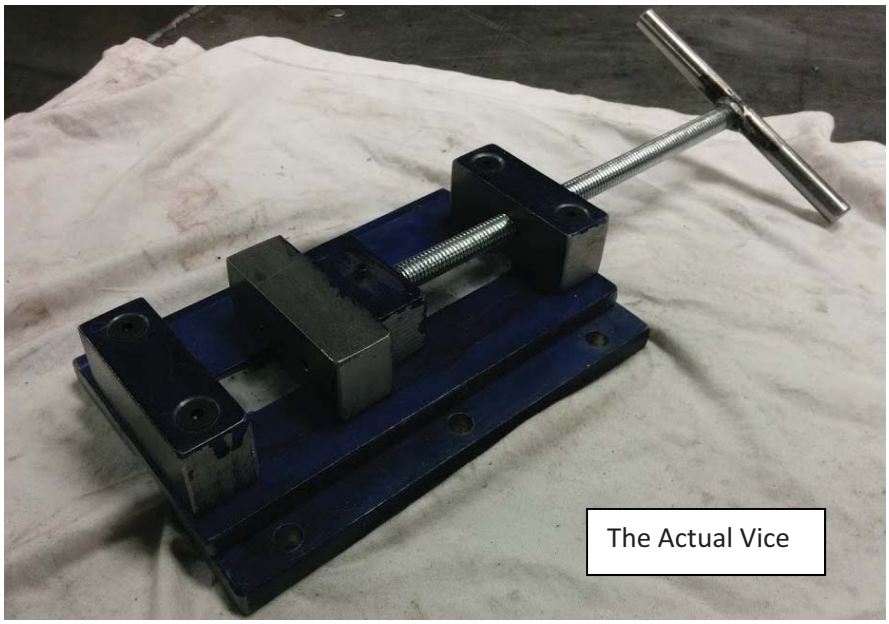


DETAIL OF THE CHANGES

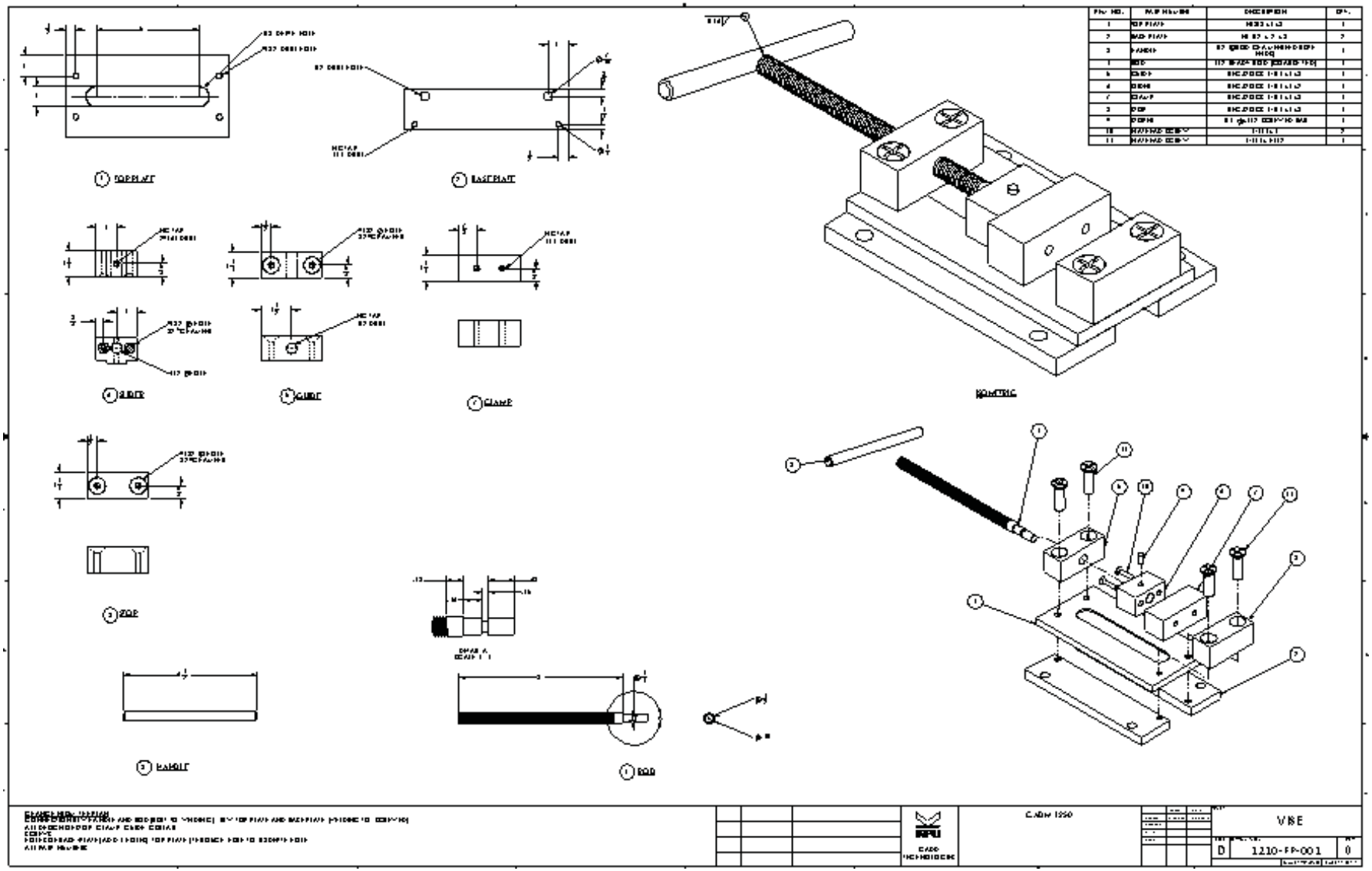
PLAN	REV. 0	Descriptions
		Handle and Rod Bolt connection ↓ Welding
		All design of stop, clamp, guide callar, slider Material **Stop, Clamp** Rec.stock 1”X3/4”X3” **Guide, Collar** Rec.stock 1”X3/4”X2” **Slider** FB 1/4”X1X1-1/2” **Screw** 1/8”Ø flathead---2 ↓ **Stop, Clamp, Guide** Rec.stock 1-1/4”X1”X3” **Collar-Slider(combine)** Rec.stock 1-1/4”X1”X3” **Screw** 1/4”X1-1/2 flathead---4 1/4”X 1 flathead ---2
		**Base-plate** No Hole (Weld connection) ↓ Add holes (Screw connection)
		**Top plate** Through hole ↓ 1/8depth hole

REV.0 DESIGN RENDER VIEW





REV.0 DRAWING



REFLECTION/LESSONS, LEARNED

In most of the cases of manufacturing, the work of a large project is subdivided into smaller tasks, and a worker is specialized in each task. Normally, a drafter may draw a fragment of a huge drawing work, and the task of drawing might make drafters forget the feeling of manufacturing an actual product. This is despite "The Fun of Producing Something" for every worker in the industry.

From this project, I could learn how a product can be made in the site from my own drafting work. It was a small project, but it was enough to understand how the work flow goes from drafting to millwright work. Moreover, I could have a lot of fun to make a device with many tools and machines. I am very happy to success to make the beautiful vise. I really appreciated that the instructor was very kind to show me many things in the millwright shop.

To sum it up, at a real job-site, efficiency is very important, so the work should be fragmented into smaller tasks. Workers might be wrapped up in a small piece of a large plan, and it is hard to see the whole project. However, this experience will be helpful to understand the connection of one's own task and other tasks in a huge manufacturing process. If I got a job, I want to remember this experience where I could feel "The Fun of Producing Something".

TIME SHEET

Activity	15-Jul	22-Jul	29-Jul	5-Aug	10-Aug	11-Aug	13-Aug	14-Aug
Lecture	0.5							
Drawing / Modeling	1.00	4.00	0.50					
Measuring/Sketching					1.00			
Edits/Revisions							3.00	2.00
Budget				1.00				
Research(Budget)		2.00						
Photography					0.10	0.10	0.10	0.10
Documentation	0.25	1.00	1.00	1.00	2.00	1.00		2.00
Millwright work					5.00	6.00	3.00	3.00

REFERENCE MATERIAL

- Metal Fabrication Shop Safety- Kwantlen Polytechnic University
- Metals Depot https://www.metalsdepot.com
- Bolt Depot.com https://www.boltdepot.com
- MSC Industrial Supply Co. http://www.mscdirect.com/

APPENDIX S

Professional CADD Courses (PCAD)

PCAD Brochure

PCAD Courses

- PCAD 0010
- PCAD 0011
- PCAD 0012
- PCAD 0013
- PCAD 0015

PCAD sample Completion Form (CCF)

NOTES

Extensive work was done to prepare these course outlines, and to work with the Registrar's office to develop a procedure for these courses to be offered in a flexible manner. These courses were offered for a few months in 2010 before they were discontinued.

This information is included in the Program Review as a historical reference, and also to provide a body of work that can be built upon when the CADD program develops Professional CADD Courses.

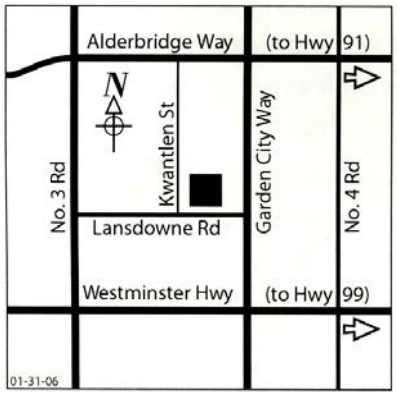
AutoCAD training and upgrading for:

- Professionals who wish to upgrade their AutoCAD® skills
- Professionals who wish to prepare for the AutoCAD® Certification exams;
  - Certified Associate
  - Certified Professional
- Professionals who wish to add AutoCAD® to their skill set
- Professionals who wish to try other Autodesk® software
  (CADD 1120 – Supervised Lab Time)
- Individuals who wish to try AutoCAD® before registering into the full time
  ***CADD Technologies Diploma Program**

*Individuals who are seeking a career in Computer Aided Design and Drafting must complete the **CADD Technologies Certificate and/or Diploma Program** to meet the requirements for entry-level CADD employment.

Locations

Cloverdale Campus
5500 – 180 Street, Surrey
(corner of Highway 10 and 180 Street)



Richmond Campus
8771 Lansdowne Road, Richmond

Richmond Campus
8771 Lansdowne Rd
Richmond, BC

More Information / To Register

Phone: 604-598-6123
Email: cadd@kwantlen.ca

Computer Aided Design and Drafting (CADD) Technologies

CADD UPGRADING and TRAINING

Part-time
Evening Courses

Richmond Campus
Cloverdale Campus

Kwantlen POLYTECHNIC UNIVERSITY

Customized Training to suit your needs

Just in Time Training

Using up-to-date online training tutorials, students can work at their own pace to complete the material for each level of AutoCAD® training.

Students will obtain a Recognition of Achievement document when they have mastered the material for each course, and the course will be added to their Kwantlen transcript.

The instructor will explain complex concepts, answer questions, assign exercises and tests, and assess / give feedback and direction for each student's progress.

Students may bring in samples of the kind of drawings they would like to create, based on the student's area of expertise, and the instructor will assist in obtaining a satisfactory result.

Cost

Students purchase CADD training in 12-week (36-hour) blocks for $495 per block. Progress and courses completed will vary by individual students.

The cost of online training material is $100 per year.
(includes all Autodesk® software)

Schedule

Richmond Campus, Tuesdays, 7 – 10 pm
Cloverdale Campus, Wednesdays, 6 – 9 pm

September 2010 to end of June 2010

AutoCAD® (Latest Release)

PCAD 0011
Level 1 – 2D Basics

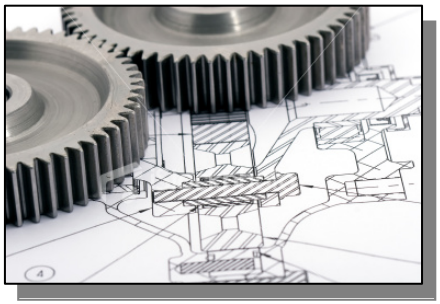
- Getting Started
- Drawing Basics
- Drafting Settings
- Display Control
- Managing Layers
- Object Properties
- Utility and Inquiry tools
- Complex Objects
- Modifying Objects

PCAD 0012
Level 2 – 2D Advanced

- Annotation Objects
- 2D Parametric Drawings
- Dimensioning
- Interface Customization
- Plotting
- Blocks and Attributes
- External References

PCAD 0013
Level 3 – 3D Modeling

- 3D Basics
- Creating 3D Objects
- Modifying 3D Objects
- Rendering 3D Models



Other Software

PCAD 0010
Supervised Lab Time

Students can use their time to try other Autodesk® products, like

- Revit Architecture®
- Revit Structure®
- Inventor®
- Civil 3D®
- 3D Studio Max®
- Navisworks®

PCAD 0015
AutoCAD® - Current Release Upgrade

Take your current AutoCAD® skills into the next release using up-to-date tutorials

APPLICATION PROCESS

Applicants must participate in an interview with the CADD Dept Chair as part of the application process. The interview can be in person, or by phone or online meeting.

Once the interview is completed, the CADD Dept Chair will send an approved (signed by Dept Chair) Application Form to the applicant to take to Kwantlen Admissions.

Registration fees can be paid at Kwantlen Admissions at any one of the four campuses: Cloverdale, Richmond, Langley, Surrey.

To arrange for an interview, please call 604-598-6123 or email cadd@kwantlen.ca

Note:
There is a one-time $40 application fee.

Kwantlen Professional Development Course Development Form

Department: CADD Technologies

Course Acronym and Number: PCAD 0010

Former Acronym and Number:

Credits: 0 academic credit hours

Descriptive Title: Computer Aided Design and Drafting Software: Supervised Lab Time

Banner Title (max 30 chars): CADD Supervised Lab Time

Prerequisites None

Corequisites **None**

Course Description: Using up-to-date online training tutorials, students will work at an individual pace to sample the material for a variety of CADD software. Students can use their time to try other Autodesk® products, like Revit Architecture®, Revit Structure®, Inventor®, Civil 3D®, 3D Studio Max®, and Navisworks®. The instructor will assist students to complete appropriate tutorials to become familiar with the software.

Implementation Date 09/01/2010

Discontinued Date -

Contact Hours: Number of hours to complete the course will vary by student. Fees will be collected for 12 weeks (36 hours) of training under Course Number: **PCAD FEEA**

Students can renew the 12-week sessions and continue training until the outcomes for PCAD 0010 have been met. A Course Completion Form (CCF) will be issued once the outcomes for PCAD 0010 have been mastered by the student.

Schedule Type: Lab

Assessment Methods **Completed Tutorials, Assignments and Exercises and Tests**

Grading system used: Mastery

Documentation: Recognition of Achievement – Supervised Lab Time

Kwantlen Professional Development Course Development Form

Department: CADD Technologies

Course Acronym and Number: PCAD 0011

Former Acronym and Number:

Credits: 0 academic credit hours

Descriptive Title: Computer Aided Design and Drafting Software: AutoCAD® Level 1

Banner Title (max 30 chars): AutoCAD® Level 1 - Basics

Prerequisites None

Corequisites **None**

Course Description: Using up-to-date online training tutorials, students will work at an individual pace to complete the material for AutoCAD® Level 1. The instructor will explain complex concepts, answer questions, assign exercises and tests, and assess and give feedback and direction for each student's progress. Topics include Getting Started, Drawing Basics, Drafting Settings, Display Control, Managing Layers, Object Properties, Utility and Inquiry tools, Complex Objects and Modify Objects.

Implementation Date 09/01/2010

Discontinued Date -

Contact Hours: Number of hours to complete the course will vary by student. Fees will be collected for 12 weeks (36 hours) of training under Course Number: **PCAD FEEA**

Students can renew the 12-week sessions and continue training until the outcomes for PCAD 0011 have been met. A Course Completion Form (CCF) will be issued once the outcomes for PCAD 0011 have been mastered by the student.

Schedule Type: Lab

Assessment Methods **Completed Tutorials, Assignments and Exercises and Tests**

Grading system used: Mastery

Documentation: Recognition of Achievement - AutoCAD® Level 1 - Basics

Kwantlen Professional Development Course Development Form

Department: CADD Technologies

Course Acronym and Number: PCAD 0012

Former Acronym and Number:

Credits: 0 academic credit hours

Descriptive Title: Computer Aided Design and Drafting Software:
AutoCAD® Level 2 - Advanced

Banner Title (max 30 chars): AutoCAD® Level 2 - Advanced

Prerequisites None

Corequisites **None**

Course Description: Using up-to-date online training tutorials, students will work at an individual pace to complete the material for AutoCAD® Level 2. The instructor will explain complex concepts, answer questions, assign exercises and tests, and assess and give feedback and direction for each student's progress. Topics include Annotation Objects, 2D Parametric Drawings, Dimensioning, Interface Customization, Plotting, Blocks and Attributes, External References
Students may bring in samples of the kind of drawings they would like to create, based on their area of expertise, and the instructor will assist in achieving a satisfactory result.

Implementation Date 09/01/2010

Discontinued Date -

Contact Hours: Number of hours to complete the course will vary by student.
Fees will be collected for 12 weeks (36 hours) of training under Course Number: **PCAD FEEA**

Students can renew the 12-week sessions and continue training until the outcomes for PCAD 0012 have been met.
A Course Completion Form (CCF) will be issued once the outcomes for PCAD 0012 have been mastered by the student.

Schedule Type: Lab

Assessment Methods **Completed Tutorials, Assignments and Exercises and Tests**

Grading system used: Mastery

Documentation: Recognition of Achievement - AutoCAD® Level 2 - Advanced

Kwantlen Professional Development Course Development Form

Department: CADD Technologies

Course Acronym and Number: PCAD 0013

Former Acronym and Number:

Credits: 0 academic credit hours

Descriptive Title:

Computer Aided Design and Drafting Software:
AutoCAD® Level 3 – 3D Modeling

Banner Title (max 30 chars): AutoCAD® Level 3 – 3D Modeling

Prerequisites None

Corequisites **None**

Course Description: Using up-to-date online training tutorials, students will work at an individual pace to complete the material for AutoCAD® Level 3. The instructor will explain complex concepts, answer questions, assign exercises and tests, and assess and give feedback and direction for each student's progress. Topics include 3D Basics, Creating 3D Objects, Modifying 3D Objects and Rendering 3D Models. Students may bring in samples of the kind of models they would like to create, based on their area of expertise, and the instructor will assist in achieving a satisfactory result.

Implementation Date 09/01/2010

Discontinued Date -

Contact Hours: Number of hours to complete the course will vary by student.
Fees will be collected for 12 weeks (36 hours) of training under Course Number: **PCAD FEEA**

Students can renew the 12-week sessions and continue training until the outcomes for PCAD 0013 have been met.
A Course Completion Form (CCF) will be issued once the outcomes for PCAD 0013 have been mastered by the student.

Schedule Type: Lab

Assessment Methods **Completed Tutorials, Assignments and Exercises and Tests**

Grading system used: Mastery

Documentation: Recognition of Achievement - AutoCAD® Level 3 – 3D Modeling

Kwantlen Professional Development Course Development Form

Department: CADD Technologies

Course Acronym and Number: PCAD 0015

Former Acronym and Number:

Credits: 0 academic credit hours

Descriptive Title: Computer Aided Design and Drafting Software: AutoCAD® Current Release Upgrade

Banner Title (max 30 chars): AutoCAD® Current Release Upgrade

Prerequisites None

Corequisites **None**

Course Description: Using up-to-date online training tutorials, students will work at an individual pace to complete the material to upgrade to the AutoCAD® Current Release. The instructor will explain complex concepts, answer questions, assign exercises and tests, and assess and give feedback and direction for each student's progress. Topics include "What's New in the Current Release".

Implementation Date 09/01/2010

Discontinued Date -

Contact Hours: Number of hours to complete the course will vary by student. Fees will be collected for 12 weeks (36 hours) of training under Course Number: **PCAD FEEA**

Students can renew the 12-week sessions and continue training until the outcomes for PCAD 0015 have been met. A Course Completion Form (CCF) will be issued once the outcomes for PCAD 0015 have been mastered by the student.

Schedule Type: Lab

Assessment Methods **Completed Tutorials, Assignments and Exercises and Tests**

Grading system used: Mastery

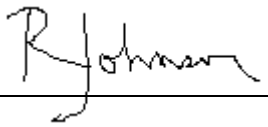
Documentation: Recognition of Achievement - AutoCAD® Current Release Upgrade

CADD TECHNOLOGIES

PCAD
Course Completion Form (CCF)

Date:	**November 16 2010**
Student Name:	**Joe Student**
Student ID:	**100155555**
Course Number:	**PCAD 0012**
Course Name:	**AutoCAD Level 2 – AutoCAD 2010**
Campus	**Richmond**
Documentation:	**Recognition of Achievement**

Instructor: **Rob Johnson**

Instructor Signature 

Kwantlen POLYTECHNIC UNIVERSITY

Recognition of Achievement

Kwantlen Polytechnic University recognizes

Joe Student

for completion of PCAD 0012
AutoCAD® 2010 – Level 2

November 16 2010

Rob Johnson
CADD Instructor

Joanne Massey
CADD Department Chair

APPENDIX T

CADD Coop – Application for Funding

NOTES

Extensive work was done to prepare this funding proposal, including an in-depth Industry Needs Survey, but the funding was not approved.

This information is included in the Program Review as a historical reference, and also to provide a body of work that can be built upon if the CADD program wishes to develop a Coop component in the program.

KWANTLEN POLYTECHNIC UNIVERSITY

2012/13 Budget Planning

Schedule B

Using the tabs at the bottom of the workbook, please complete a worksheet for each initiative.

Initiative: **WORK-INTEGRATED LEARNING (Co-operative Education)**

Expected Scenario

		2012/13	2013/14	2014/15	Total
i) Expected Costs:					
Salary and benefits costs:					
Faculty (1.0 FTE=$84,900; 1 Section = $10,600)		$ 33,960	$ 33,960	$ 33,960	$ 101,880
Staff	(0.5 FTE - Level 5)	20,248	20,248	20,248	60,743
Administration					-
Other					-
Benefits (estimated average rate of 24%)		13,000	13,000	13,000	39,000
Total Salary and benefits costs		**67,208**	**67,208**	**67,208**	**201,623**
Non-salary costs:					
Travel / Professional Development					-
Supplies					-
Other costs (please provide details)					-
Information and Education Technology					-
Library Resources					-
Total Non-salary Costs		**-**	**-**	**-**	**-**
Capital costs:					
Furniture and equipment					-
Renovations and other facilities*					-
Total Capital costs		**-**	**-**	**-**	**-**
Total Costs	(i)	**67,208**	**67,208**	**67,208**	**201,623**
ii) Expected Revenues or funding sources					
Tuition revenue (course enrollments and tuition fees)		2,471	24,710	24,710	51,891
External grants, partnerships, fees					-
Other					-
Re-allocation of resources (please indicate source)					$ -
Total Revenue or Funding Sources	(ii)	**2,471**	**24,710**	**24,710**	**51,891**
FUNDING REQUIRED	(iii)=(i)-(ii)	**64,737**	**42,498**	**42,498**	**149,732**
iii) Requested Operating Fund allocation (please include all applicable):					
New ongoing budget allocation		64,737	42,498	42,498	$ 149,733
One-time only budget allocation					$ -
FUNDING REQUESTED	(iv)	**64,737**	**42,498**	**42,498**	**149,733**
Difference (must equal $0)	(iii) - (iv)	**$ (1)**	**$ (0)**	**$ (0)**	**$ (1)**

**All renovations and other costs should be reviewed by Facilities*

Assumptions / Comments (please provide details):

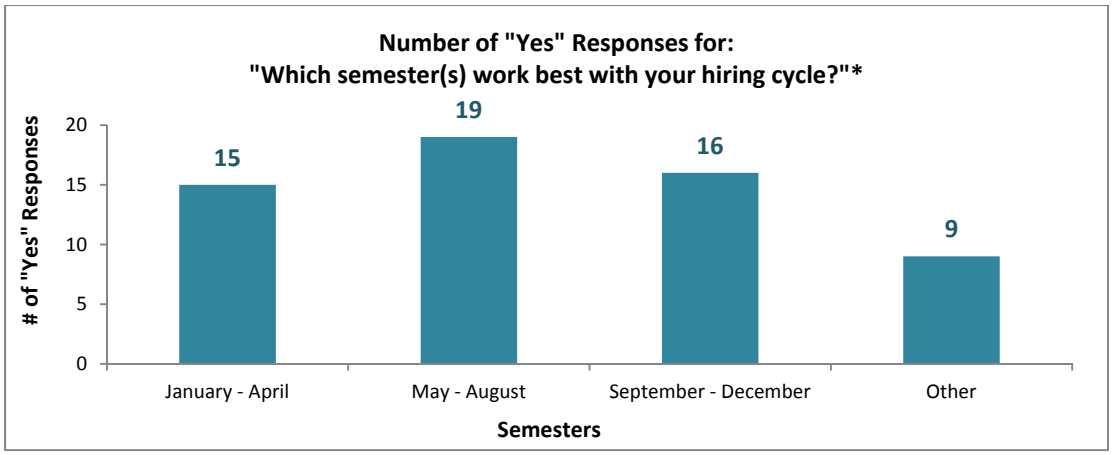
The CADD Diploma was originally approved with a Co-op option but has not provided that option as of yet to students. A survey with industry was conducted in summer 2011 to determine if there was industry support for such a program. Of the responses received, more than 50% of the respondents indicated support and interest in hiring a CADD Co-op student. Faculty and students of the program fully support launching this option. Full support from the CADD Advisory Committee was also recently received. Budget requested is based on an estimated 20-25 students participating per year.

Note: Revenue generation is estimated based on 20 students from the program noted above enroling in COOP 1101 for Fall 2012. It is expected that 20 new students will join each year thereafter including 20 of these students participating in two work terms for 2013/14 and 2014/15. While tuition revenue estimates the net cost to the university, the total costs shown are required.

This Budget Request was prepared and submitted by
Shawn Erickson
Director of Coop Education and Career Services

CADD COOP SURVEY (Industry Needs Survey)
Conducted August 9 2011

1a. Co-op work terms follow our semester schedule; therefore, our students are typically available for four months of full-time work each January, May and September. Please identify which semester(s) work best with your hiring cycle. (Please choose all that apply.) January to April; May to August; September to December; Other:

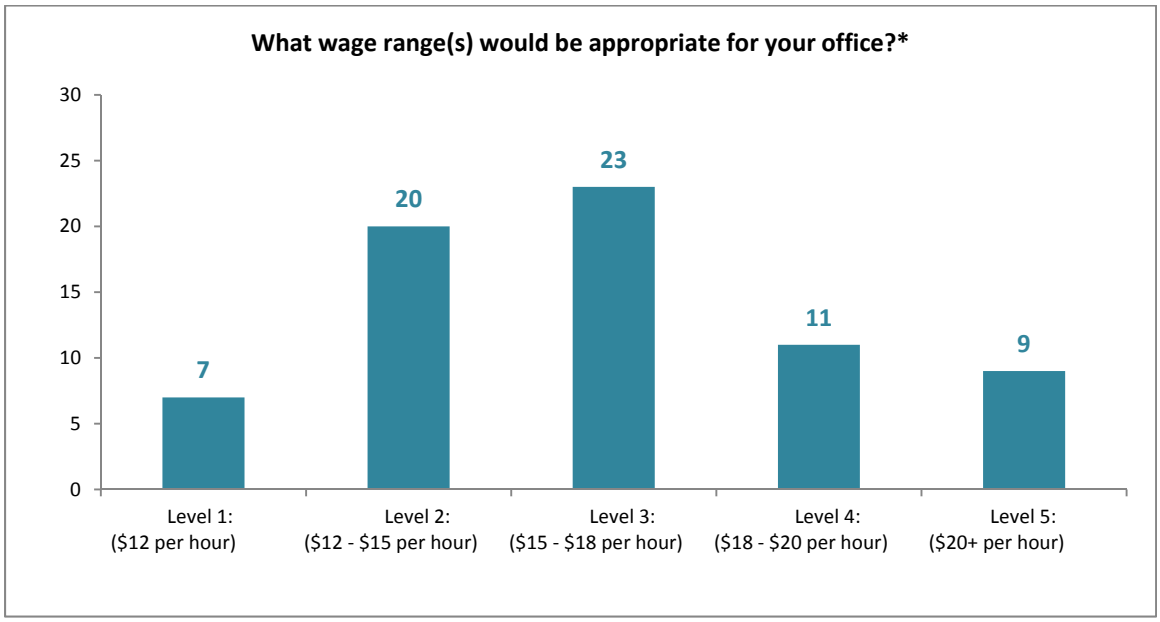


1b. If you chose "Other" to the above question, please specify what periods are the best fit for your organization and why:

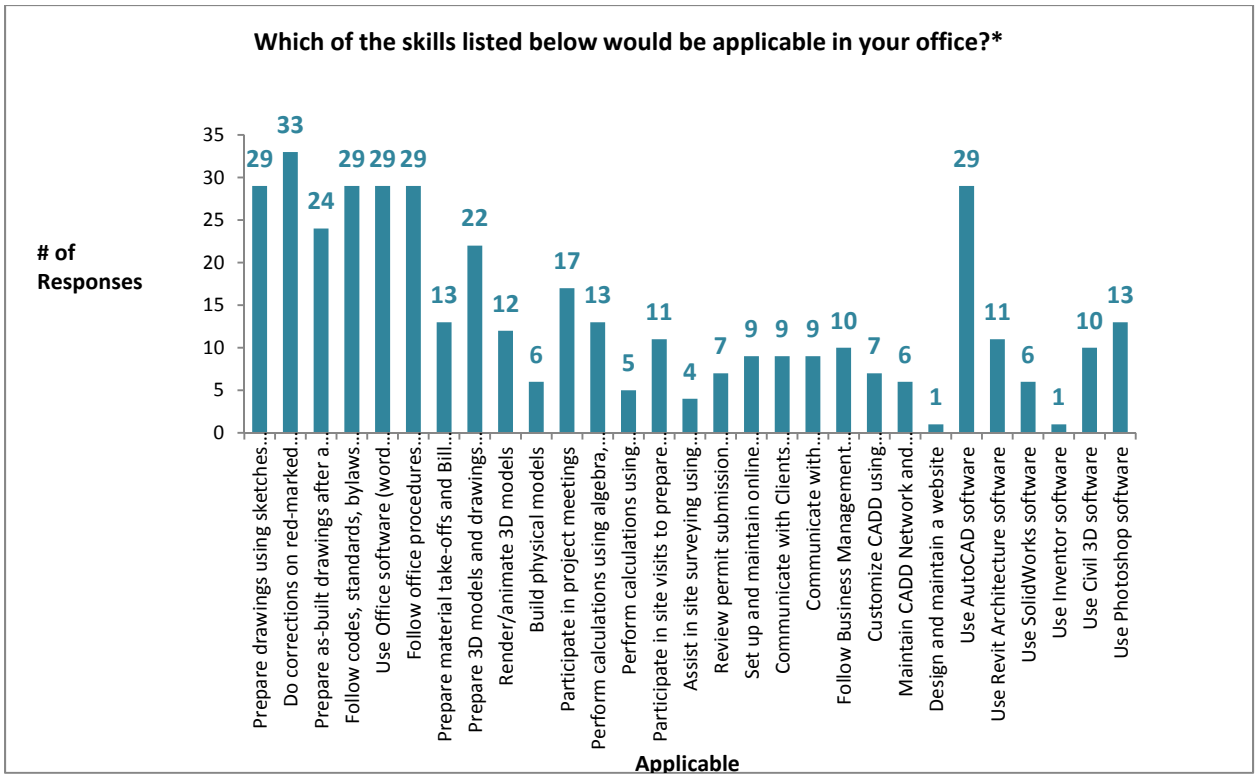
full time short term
Hiring is currently done on a as needed basis
No specific cycle
Project based work so it depends on project workload available
Sometimes it just depends on how busy the office gets
We are a small firm hand hence hire on an as needed basis
We don't have a specific hiring cycle. our busiest times are the fall months
We generally do not hire students for fixed terms; we generally seek staff for full-time positions.
We have no "Hiring cycle." Temporary employment can help offset summer vactions or increased autumn that usually occurs until Jan.

we prefer students for a longer period so that they can really get into things. minimum 6 months to 1 year
Work loads always vary so the best period will change every year

2. What wage range(s) would be appropriate for your office? (Please select all that apply.)



3. Which of the skills listed below would be applicable in your office? (Please choose all that apply.)

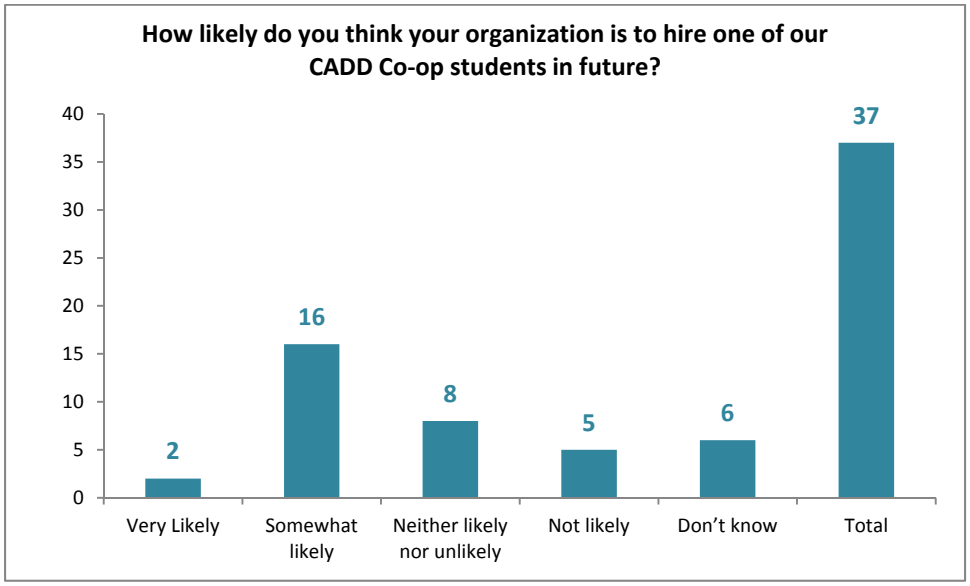


4. In addition to the skills listed above, can you suggest other skills that would help Kwantlen CADD students to meet your needs as an employee?

Responses:

Ability for accurate 3D Spatial recogniton / visualization.
actual sketch hand drawings; experience w/ Vectorworks & Sketchup
Basic electrical knowledge for utilities.
BIM/Revit is the future so emphasize that
Business communication skills
Candidates would need to have the skills and education required on our class specifications.
Cartographic representation skills.
Have basic mapping and drafting skills.
Knowledge of HVAC & plumbing design drafting. Familiar with drawing setup & file management. Good communication (english language) skills.
More emphasis on municipal infrastructure, topographic surface models, detailed knowledge of infrastructure elements, knowledge of the "art" of drafting - spacial layout, relevance of information, fundamentals of civil engineering practice, knowledge of c
Piping Design Skills
Should be able to do CAD drafting and limited design of Roadways and Municipal infrasture design or upgrades
Sketchup Software
Sketchup software, mac based computer
Team player skills
Vectorworks + Sketch-up

5. How likely do you think your organization is to hire one of our CADD Co-op students in future?



6. Have you any additional comments that could guide the planning of Kwantlen's new CADD Co-op program?

Cadd campus in central Surrey for convenient night-school access.

Co-op employment opportunities will likely be best suited to organisations that can afford to dedicate time and training to the student. Students with minimal knowledge and experience cannot be expected to be offered opportunities in production-oriented

Following and understanding instructions is the largest weekness that we find in even experienced CAD operators. Also, care with the file structure and reference files is absolutely critical on large projects. Junior CAd operators can be very dangerous

good to have additional training in related field of architecture, landscape architecture or planning

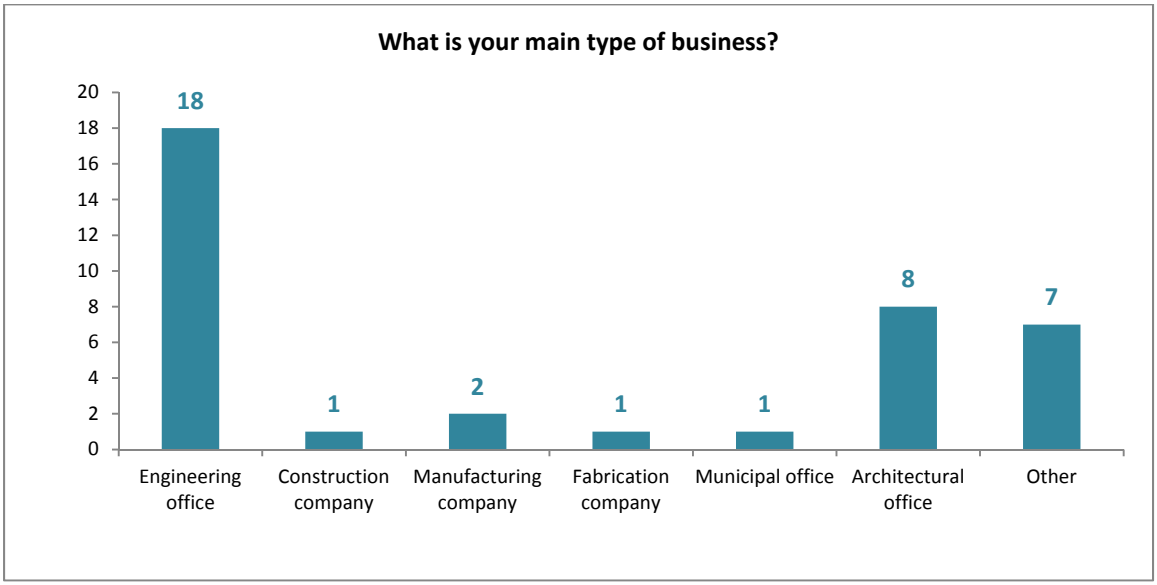
Have to have some training and understanding of Municipal/Civic engineering drawing requirements

How do we find/hire co-op students?

There is a serious lack of trained piping designers

When hire staff we are looking for employees who are well rounded and have a professional or technical degree.

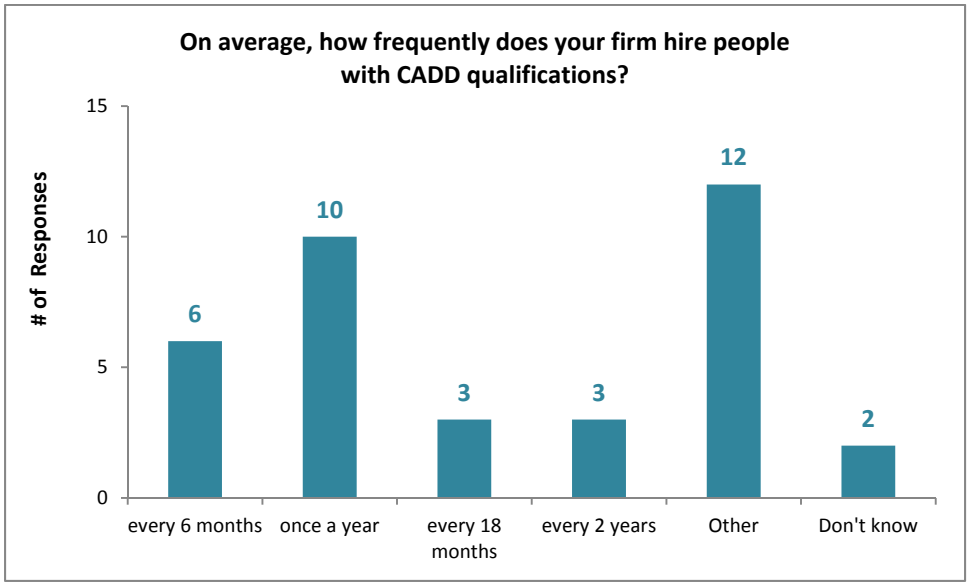
7a. Please tell us a little about your organization. What is your main type of business?



7b. If you selected other, please specify:

Arch, Eng and Const
Building Design
Civil consulting - municipal
Engineering and Architectural office
Engineering with Architectural group
Gov't research, design & manuf prototype
Interior Design
Transportation/Minicipal Engieering Offi
Urban Planning and Urban Design

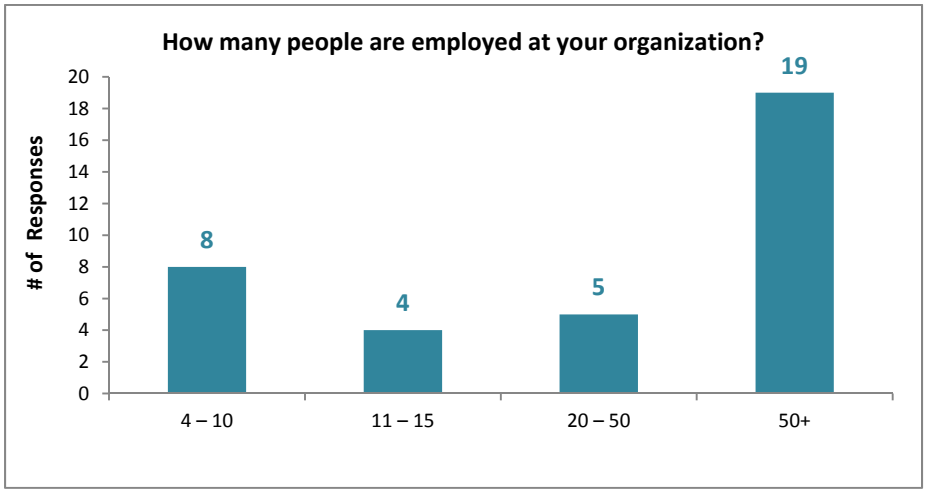
8a. On average, how frequently does your firm hire people with CADD qualifications?



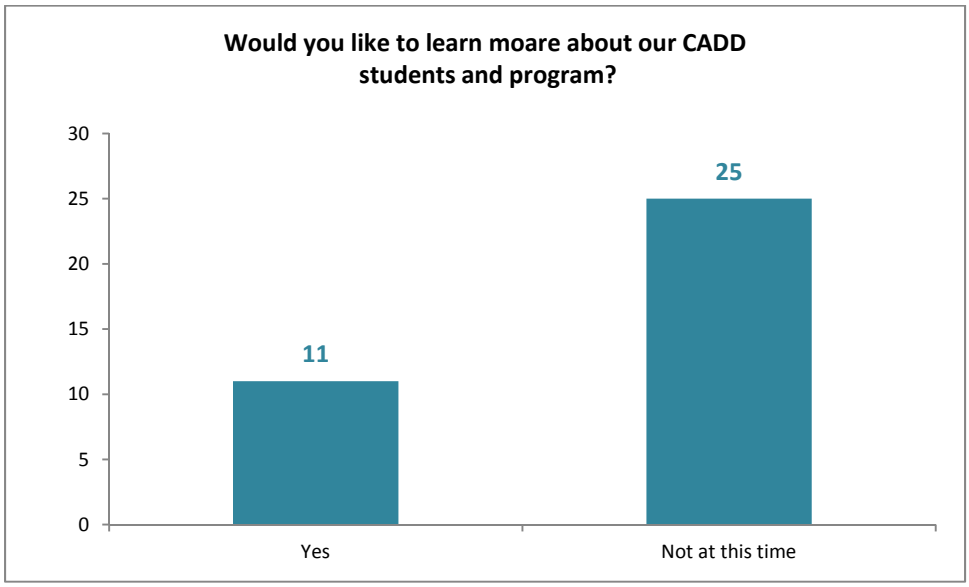
8b. If you selected other, please specify:

1 year almost FT basis
As needed
As needed basis.
As needed, but most employees know Autoc
As required for project workload
depending on Highway projects
Depending on need
Depends on our hiring needs
Depends on workload
If the coop program works.. often
Low turnover,maybe (1) per 5 year period
Not often, but right candidate could be
Related to industry requiements yearly

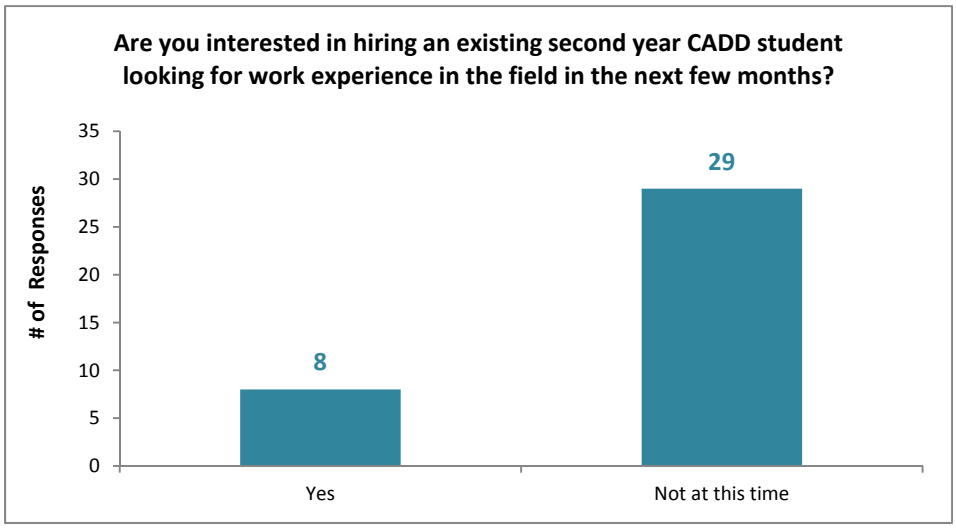
9. How many people are employed at your organization?



10. Would you like to learn more about our CADD students and program?



11. Are you interested in hiring an existing second year CADD student looking for work experience in the field in the next few months? (Note: the Co-op program would not begin until fall 2010)



12. If you answered "yes" to any of the previous questions, please provide your contact information below:

Contact Name	Company Name	Email Address	Phone Number
john Jones	Jones Metal Fabrication	jjones@jones.com	604-681-2030
Mark Blais	NORAM Engineering and Constructors	mblais@noram-eng.com	
Shiva Lotfi	GENIVAR Inc.	shiva.lotfi@genivar.com	
Harold Westerman	Moffatt & Nichol	hwesterman@moffattnichol.com	
Scott MacNeil	James KM Cheng Architects Inc	smacneil@jamescheng.com	604 873-4333
Jennifer Marshall	Urban Arts Architecture	marshall@urban-arts.ca	604-683-5060
Tom Vanderhoek	National Research Council	tom.vanderhoek@nrc.ca	604-221-3141
Tim Hawker	AMEC Earth and Environmental	tim.hawker@amec.com	
Kelley Hishon	BC Hydro	kelley.hishon@bchydro.com	
Stephen Quigley, MAIBC	The Colborne Architectural Group Pacific Inc.	squigley@colbornegroup.com	604-669-4166
Greg J. McNeill, P.Eng	Principal	gmcneill@morrisonhershfield.com	604-454-0402

13. Can you recommend industry colleagues who would be interested in filling in this survey?

Peter Peterson	Peterson Architectural Renderings	ppeterson@peterson.com

14. Industry colleague contact:

Joy Chao	John Henshaw Architect Inc.	1666 West 75th Avenue	604-264-1072

APPENDIX U

Proposal for CADD Diploma in Business

NOTES

Extensive work was done to prepare this proposal, but it was never advanced through the Curriculum Committee.

This information is included in the Program Review as a historical reference, and also to provide a body of work that can be built upon if the CADD program wishes to develop this option in the CADD Diploma

Kwantlen
UNIVERSITY COLLEGE

MAILING ADDRESS
12666 – 72nd Avenue
Surrey, BC
Canada V3W 2M8

TELEPHONE
604-599-2100
WEBSITE
www.kwantlen.ca

Memorandum

TO: **Education Council**

C: Dana Goedbloed

FROM: Drafting/CADD Technologies (Joanne Massey)

DATE: April 26 2007

SUBJECT: Proposed additional Diploma path for Drafting/CADD Technologies

Proposal

To add the following Diploma path to the Drafting/CADD Diploma Full Program Proposal (FPP) that was approved by Education Council on September 25 2006:

- Diploma in Drafting/CADD - Business option.

(see attached diagrams)

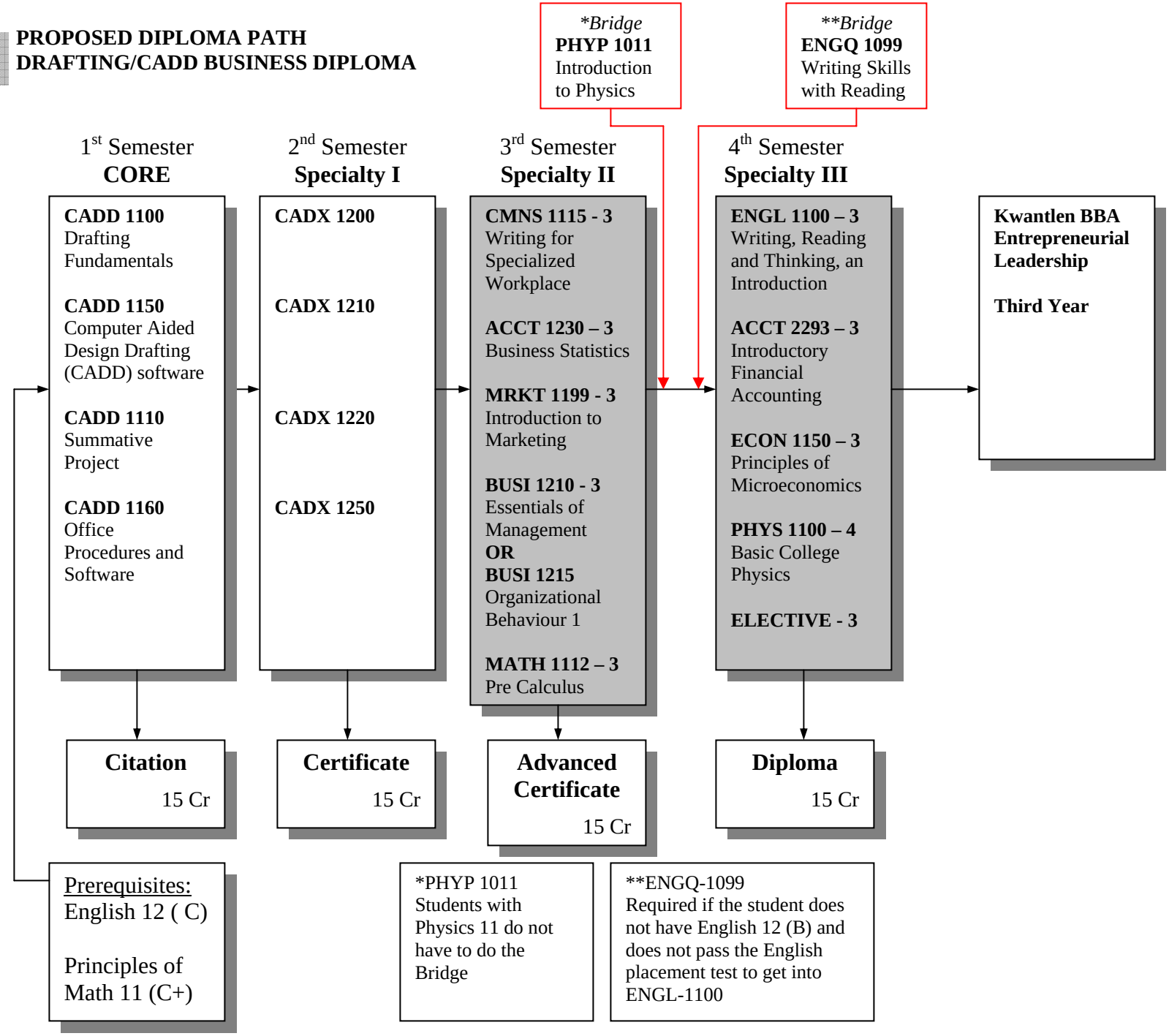
Rationale

- The **Diploma in Drafting/CADD – Business option** will allow students to continue with their education at any time, even when their specialty is not being offered. (The specialty courses for the Advanced Certificate and Diploma as approved in the FPP will run every second year.)

- Students can enter directly into the third year of the BBA with 60 credits
(instead of 75 credits which is the Diploma plus bridging courses)

- All the courses in the Advanced Certificate and Diploma are existing Kwantlen courses with open registration, allowing students to work from the Certificate towards the Diploma on a part-time basis while working in industry.

PROPOSED DIPLOMA PATH
DRAFTING/CADD BUSINESS DIPLOMA



EXISTING DIPLOMA PATH

Existing BBA Bridge

Bridge
PHYP-1011
Introduction
to Physics

1st Semester **CORE**	2nd Semester **Specialty I**	3rd Semester **Specialty II**	4th Semester **Specialty III**	BBA Bridging Courses
CADD 1100 Drafting Fundamentals **CADD 1150** Computer Aided Design Drafting (CADD) software **CADD 1110** Summative Project **CADD 1160** Office Procedures and Software	**CADA 1200** Architectural Fundamentals **CADA 1210** Single Family Residential **CADA 1220** Commercial Building **CADA 1250** Building Information Model (BIM) Software	**CMNS 1115** Writing for Specialized Workplace ***ENGQ 1099** Writing Skills with Reading **CADD 2160** Office Procedures II **CADA 2100** Multi-Family Residential **CADA 2150** Advanced BIM Software Project	**PHYS 1100** Basic College Physics **MATH 1112** Pre Calculus Algebra **CADD 2260** Office Procedures III **CADA 2200** Multi-Use Complexes **CADA 2250** BIM – Integrated Systems	**ACCT 1230 – 3** Business Statistics **MRKT 1199 - 3** Introduction to Marketing **BUSI 1210 - 3** Essentials of Management **OR** **BUSI 1215** Organizational Behaviour 1 **ACCT 2293 – 3** Introductory Financial Accounting **ECON 1150 – 3** Principles of Microeconomics

Kwantlen BBA Entrepreneurial Leadership

Third Year

Citation 15 Cr

Certificate 15 Cr

Advanced Certificate 15 Cr

Diploma 15 Cr

BBA Bridge 15 Cr

Prerequisites:
English 12 (C)

Principles of Math 11 (C+)

*PHYP 1011
Students with Physics 11 do not have to do the Bridge

*ENGQ-1099
Required if the student does not have English 12 (B) and does not pass the English placement test to get into ENGL-1100

APPENDIX V

Proposal for Math Substitution in CADD Diploma

NOTES

Extensive work was done to prepare this proposal, but it was never advanced through the Curriculum Committee.

This information is included in the Program Review as a historical reference, and also to provide a body of work that can be built upon if the CADD program wishes to develop this feature in the CADD Diploma

College of Trades and Technologies
CADD Technologies

Proposed Modification to CADD Diploma 4th Semester

Prepared by Joanne Massey
May 27, 2008

Drafting/CADD Technologies

Proposed Modification to CADD Diploma 4th Semester

Rationale:

The 4th semester of the CADD Diploma includes MATH 1112 and PHYS 1100.

These courses were included in the Diploma to ensure that Diploma graduates could continue their education into Engineering or Technology by having the Math and Physics prerequisites.

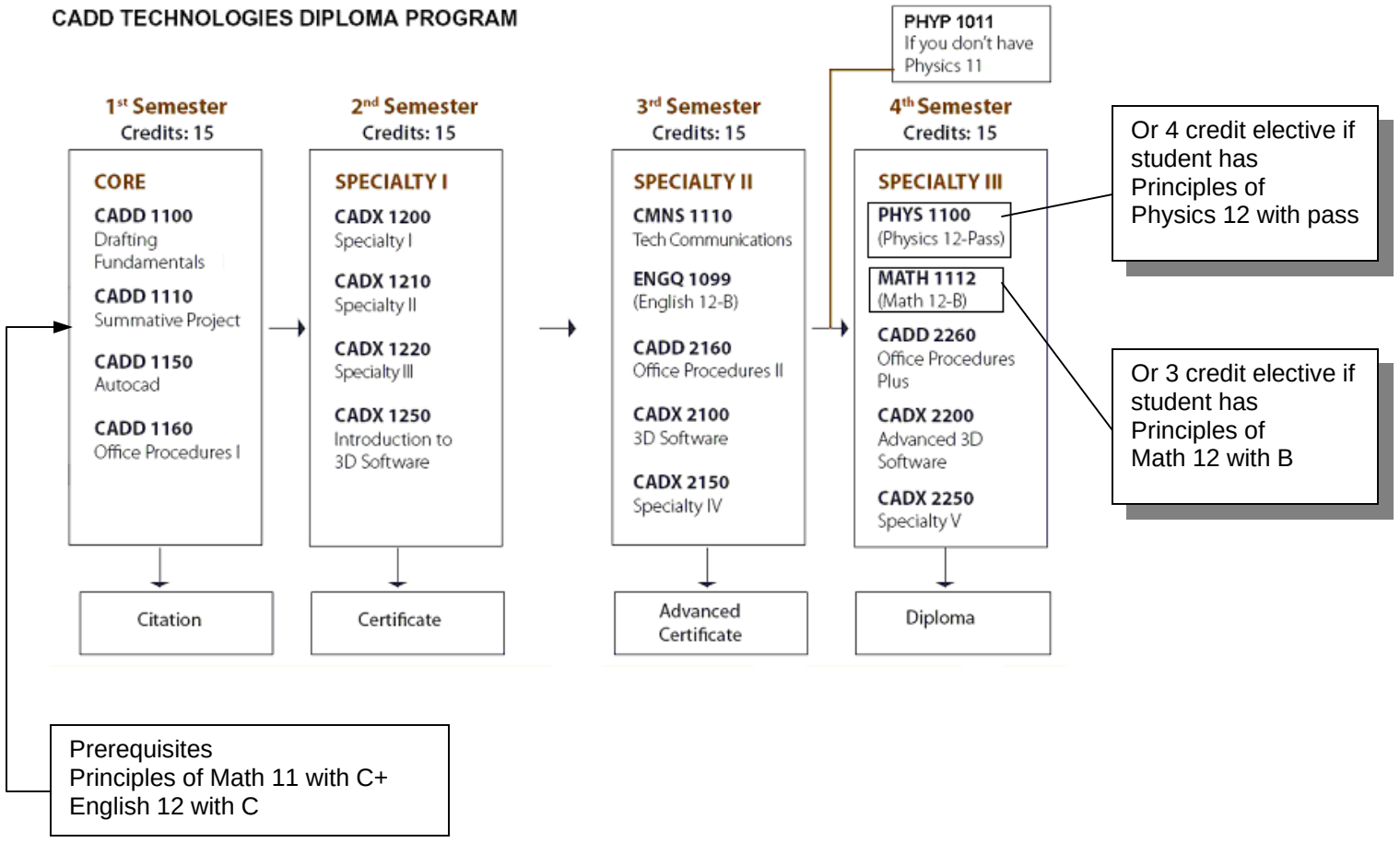
MATH 1112 (3 credits) =	Principles of Math 12 with B	(prerequisite for MATH 1120)
PHYS 1100 (4 credits) =	Principles of Physics 12 with pass	(prerequisite for PHYS 1120)

In many cases CADD applicants already have Principles of Math 12 and/or Principles of Physics 12 and so it would be redundant for them to take either of both of these courses simply to meet the credit requirements for a Diploma.

Proposed solution

CADD students who already have Principles of Math 12 and Principles of Physics 12 with appropriate grades to meet entrance requirements for MATH 1120 and PHYS 1120 could take electives that would earn 7 or more Kwantlen credits towards the Diploma.

Please Note: The Environmental Technologies program has a similar situation and allows students to earn sufficient credits for a Diploma by taking electives.



APPENDIX W

CADD Program: Biographies (CV)

Regular Faculty:

- Christina Heinrick
- Stephen Kennedy
- Daryl Massey (Dept. Chair)
- Joanne Massey
- John Sprung
- Michael Whitmore

NR1 Faculty

- Paul Backus

Staff

- Todd Bolenback – CADD Program Assistant

Christina Heinrick

Faculty Qualifications and Currency

Name of Faculty

- Trades and Technologies

Faculty Position

- Full time faculty

Academic Credentials

- M.Ed in Instruction and Curriculum - SFU
- Diploma in Adult Education - VCC
- Provincial Instructors Diploma - VCC
- Certificate in Drafting - KPU
- Certificate in AutoCAD - KPU

Industry Credentials and Experience

- Structural Steel Designer - 2014
- Chair's Academy - 2011
- 1990 - 1995 – Full time employment as Drafter
    - Jaakko Poyry N.L.K. Inc.
    - Fisher and Ludlow
- 1990 – 2014 – Contract drafer
    - City of New Westminster
    - Kwantlen Polytechnic University - Drafting/CADD – Architectural/Facilities
    - Creative Homes - Drafting/CADD – Architectural
    - Ministry Of Advanced Education – curriculum development
    - Masonry Institute of B.C. - Construction Details published in B.C. Masonry Standards
    - Klohn Leonoff
    - Hydramach Overhead Crane Ltd.
    - Exor Data
    - Canac/Microtel

Memberships

- AUGI – Autodesk User Group International
- VAUS – Vancouver Autodesk User Society

External Industry-based Activities

Liason for CTC (Career Technical Consortium) with Surrey, Delta, Richmond and Langley School Districts for partnership program. Chaired the TTPC (Trades and Technology Partnership Committee) from 2008-2009.

Internal Industry-based Activities

Coordinate industry employee presentations for current students and graduates

Coordinated CADD Tech. Participation at various events (Open houses, Trade fairs, etc.)

Skills Canada – Tech Chair (Mechanical and Architectural competitions) – 5 yrs.

Research Activities

Action research – M.Ed. course and paper "In transition: An exploration of a Vocational Drafting Program's progression into an Academic Model (2008)

Research report - Continuing Education in Trades and Technology Faculty – objectives and challenges (2009)

Internal Scholarly and Professional Activities

Academic Service

2015 – Present	Faculty Council - Governance Committee
2013 – 2015	Teaching and Learning Task Force
2008, 2011–2014	Chair's Committee
2013-Present	Educational Leave Committee
2012-Present	Timetabling Advisory Committee
2012-Present	Faculty Council - Academic Planning and Priorities
2008 – Present	Coordinate events (Open Houses, Try a Trade, etc)
2009-Present	Chancellor's Chair Selection Committee
2011-2012	Foundations of Excellence Committee
2009-2010	Bachelor of Technology Task Force

2009-Present	School District Partnership committees/liaison
2009-2010	South Fraser Trades Advisory Committee
2000-Present	Scholarships and Awards Committee
2008-2014	Senate Standing on Program Review Committee
2009	Transitional Faculty Council Task Force
2000-Present	Skills Canada Competition (eight years involvement)
2004-Present	Liaison for CTC partnership program
2002-2003	Research and Scholarship Implementation Committee
2005-Present	Member on various Search Committees, including Instructor, Staff, Dean and Associate Dean

Three ways I stay current

Education via courses, workshops and self directed software upgrading and testing (2012 – Certified Autodesk Professional – AutoCAD 2013)

Connected with industry to keep relevant in technological shifts

Research job opportunities for students to one help them obtain employment after graduation, secondly to keep abreast of industry needs and entry level requirements, which then I can

Faculty Qualifications and Currency

Name of Faculty Member: Stephen William Kennedy

Faculty Member Position: CADD Technology Instructor

Academic Credentials:

- Canadian GeoExchange Coalition Installers Course Certificate – UBC
- Structural Steel Detailing and 3D Modelling – Dowco Engineering, Vancouver
- CADD Menus and Macros – Kwantlen College
- Instructor's Diploma (ID) in Drafting – UBC
- Structural Steel Metallurgy – BCIT
- Statics and Strength of Materials - BCIT
- Field Survey – BCIT
- Survey Computations - BCIT
- University Math - Langara College
- Structural Drafting Certificate - BCIT

Industry Credentials and Experience:

Kwantlen Polytechnic University

- Instructor of Core Architectural and Structural courses

PBK Engineering - Projects:

- BC Hydro Overhead Trolley Lines
- Kamloops Arena
- Vancouver International Airport

NLK Engineering - Project:

- White Court Pulp & Paper Mill

Homeswood Poole and Johnson Engineers, New Zealand - Projects:

- Fourteen - 12 story high-rise buildings

Industrial Mill Installations - Projects:

- New Eburne Sawmill

Vancouver Community College (Full-time evening)

- Instructor of Structural Drafting course

PBK Engineering, Vancouver - Projects:

- Vancouver Coliseum
- Arthur Laing Bridge
- BC Place Stadium
- Lynn Creek Bridge
- North Delta Arena
- Vancouver International Airport
- Edmonton Coliseum
- Royal Columbian Hospital
- Tree Island Steel

External Industry-based Activities:

- GeoExchange Study for a residential/commercial property on western Vancouver Island. (Worked together with Cobalt Engineering and Bear Mountain Resort.)

Internal Industry-based Activities:

- Trade Shows

- Expos
- High School Visits
- Skills Canada Judge
- Through talking with past students and employers, course planning and curriculum has been revised annually to keep up with industrial standards

Research Activities:

- Remain up-to-date with codes and building practices for British Columbia
- Investigate “Green” (sustainable) roof and wall designs

Internal Scholarly and Professional Activities:

- ASTTBC member (Applied Science Technologists & Technicians of British Columbia)
- Kwantlen Cloverdale Events Committee
- AutoCADD training seminar in Las Vegas (5 days)
- Auto Desk Destination Desktop Activity (3 day workshop)
- Kwantlen Safety Committee

Three Ways I Stay Current:

- Ongoing contact with former co-workers in the design field
- Remain in contact with several past graduates from my classes
- Visit engineering companies (Bisborne Group, Glottmann Simpson Cochrane Engineering, etc.)

Faculty Qualifications and Currency

Name of Faculty Member:

Daryl Massey

Name of Faculty:

CADD Technologies – KPU Tech Campus

Faculty Position

Current Faculty Chair
Part-Time (83.5%) Regular Faculty Instructor Position
Areas of Specialty:
Architectural Construction and Design, Building Envelope, Sustainable Design

Industry Credentials and Experience

Fifth Element Construction & Renovations Ltd. – Partnership / Operations Mgr.

PCM Construction Ltd. – Superintendent and Project Manager

Massey Homes Ltd. – Sole Proprietor

External Industry-based Activities (where relevant)

Custom Home Design and Construction
Multi-Family Development
Industrial and Commercial Project Management
Land Acquisition and Development
Single-Family and Multi-Family Building Envelope Remediation
Web-site Design and Management
Construction Management Systems and Time Management

Internal Industry-based Activities (where relevant)

CADD Program Advisory Committee Coordinator/Facilitator
Current KPU Committee Membership:
- Senate Committee on Curriculum (SCC)
- Chairs Committee
- Budget Committee
- Faculty Council
- Faculty Curriculum Committee

Skill Canada Facilitator and Judge
CADD Program High School Partnership Facilitator (CTC)
Department Liaison to Articulation Committee (BCDTAC)

Current Research Activities

Participant in “KPU Builds” Initiative to build emergency shelters in FIJI
Research and Implementation of Sustainability course materials into general CADD curriculum
Degree Implementation and Pathways Development
Multi-Institutional Articulation and Degree Transfer Credit Agreements

Internal Scholarly and Professional Activities

Learning Management System (LMS Moodle) course material and delivery implementation
Distant Learning course delivery methodology (Lecture videos, online resources and testing, etc.)
Regular attendee at Autodesk University (AU) 5 day professional ACAD training

Three ways I stay current

1. On-line software training (4D Cadlearning / Lynda.com)
2. Journals, articles, trades publications, seminars, etc.
3. Continued participation in innovative construction practices, drafting and design:
    a. Timber Framing
    b. Sustainable practical renovation and new construction
    c. Renewable energy production and Passive Solar design

Joanne Massey

Faculty Qualifications and Currency

Name of Faculty

Trades and Technology

Faculty Position

Full time faculty

Academic Credentials

Certificate in Drafting - VCC

Industry Credentials and Experience

2008 - 2013
Senior Mechanical Designer
AMEC Americas

1991
Field piping designer and installation supervisor
Foundation Construction
Newstech Recycling Plant

1988 - 1991
Senior mechanical designer
Hipp Engineering Ltd.

1986 - 1988
Piping construction site supervisor
Nystrom, Lee, Kobayashi Engineering

1981 - 1983
Resident designer/drafter
Ocelot Industries Ltd. (Methanol)

1980 - 1981
Intermediate mechanical designer
Piping construction site supervisor
Hipp, Nystrom and Lee Engineering

External Industry-based Activities (where relevant)

Design and Drafting in Manufacturing

Working in local Engineering firms during PD and unpaid LOA

LinkedIn

Skills Canada Chair for Mechanical & Architectural (Post Secondary)

Created a User Group for 3D Modeling Software (Inventor)

Member of Vancouver AutoCAD User Society (VAUS)

Member of Project Management Institute (PMI)

Internal Industry-based Activities (where relevant)

Field Trips

Participation in PAC Meetings

Participated in the development of National Technician Standards for the Drafting industry

Participated in Habitat for Humanity build in Fiji, May 2012 “KPU Builds”

Organized (along with a commercial partner) a 3-day professional training conference for 100 CADD professionals, held at KPU

Research Activities

- Provincial Drafting Common Core project (funded by MAvEd)
- Transfer Innovations project for CADD related programs in BC (funded by BCCAT)
- Developed conversion of CADD courses to online and blended (funded by KPU Grant)

Internal Scholarly and Professional Activities

- Served 2 terms as CADD Department Chair
- Designed and implemented a two-year undergraduate CADD Technologies Diploma program covering six disciplines
- Designed a Bachelor of Technology in Trades Innovation Degree
- Granted special funding for a variety of educational initiatives
- Organized a Program Advisory Committee (PAC) for six discipline areas in the CADD Technologies program
- Organized KPU CADD Alumni Reunion
- Participated in the development of High School Drafting Curriculum

- KPU Committees:
    - Educational Leave Committee
    - Scholarship and Awards Selection Committee

- Program Review Committee
- Learning Management Committee (LMS) Committee
- Internal Awards Review Committee
- Search Committees (Staff, Faculty, Operations Manager)

Three ways I stay current

Online learning resources:

- Lynda.com
- SolidProfessor.com
- Cadlearning.com (Autodesk software)
- IGetIT (GDT training)

Participate in professional organizations and conferences:

- Vancouver AutoCAD User Society
- Project Management Institute
- Autodesk University conference

Keep in touch with connections in industry, to keep relevant and also to facilitate placement of CADD graduates into employment situations

Faculty Qualifications and Currency

Name of Faculty

John Phillip Douglas Sprung

Faculty Position

CADD Technologies, Instructor

Liaison with IET on CADD LAB Network design, implementation and operation

Autodesk Training Center Manager (past)

Academic Credentials

B.Sc. (Comp. Sc.) UBC

B. Arch, UBC - incomplete

Industry Credentials and Experience

Professional membership

Association for Computing Machinery ACM (current)

ACM – Special Interest Group for Graphics (SIGGRAPH) (current)

Institute of Electrical and Electronic Engineering IEEE – Computer Society (lapsed 2011)

Association for Heating, Refrigeration and Air Conditioning Engineering ASHRAE – associate (current)

Royal Architecture Institute of Canada RAIC/Architecture Canada – associate (current)

Architectural Institute of British Columbia AIBC – associate (lapsed 1990)

Vancouver PC Users Group Member & past president

Vancouver AutoCAD User's Society Member & past president (current)

Society for Technical Communications STC– Founding member and past President Vancouver chapter

Microsoft Developers Network (MSDN) Ongoing member (current)

Autodesk developers Network (ADN) – Member & Author (current)

(Kwantlen UC) Autodesk Authorized Training Center (ATC) Manager & Instructor. Professional upgrading courses.

Certified Autodesk Instructor (CAI) for:

- AutoCAD
- Autodesk Architectural Desktop
- Autodesk 3D Studio

UBC School of Architecture, Associate Professor,

External Industry-based Activities (where relevant)

City of Surrey

Cloverdale Chamber of Commerce

Cloverdale BIA

Surrey Board of Trade

Surrey Mayor's special projects:

TownShift

TownShift: Connected

Vertical Farming/ urban farming

Heritage Rail Demonstration Project

Cloverdale Streetcar

Society Membership

FVHRS* – chairman

Darts Hill Garden conservatory society* member & volunteer

*- KPU is corporate member or advisor for these groups

Internal Industry-based Activities (where relevant)

Please see ***Ways I stay*** current, below.

Research Activities

Awards

Canadian, US and international: 4 patents on computerized control of pipe manufacturing equipment

Internal Scholarly and Professional Activities

Kwantlen Polytechnic University

Educational Technology committee

Moodle steering committee (decision on Course Management tools)

Senate

Senate – Educational leave committee

Math Qualitative review committee – member & acting Chair

Faculty of Trades & Technology

Council member

Council – Curriculum committee (CC) (Also Ed Council Curriculum before Faculty Council formed.

Council – Academic policies & priorities committee (AP&P)

Council – Governance committee

Budget committee

Campus Safety

Cloverdale Research Group

CADD Technologies department

CADD Tech. Department Chair

Dept. curriculum committee

Faculty Search committee – CADD Technologies (Drafting - CADD)

Library Liaison

IET Liaison

CTC committee, Chair & dept. liaison

Campus Planning and move – lab design, furniture design, network design and layout, coordination of move from Newton campus

Public Safety Communications department

Faculty Search committee – Public Safety Communications (PSCM)

Ways I stay current

Member: BC Drafting Articulation committee

Course development with CADD Tech. PAC & Steering committee

Ongoing work in the planning and design community

Liaison with municipal, provincial and federal regulatory bodies. (City of Surrey, Engineering and Planning; Province of B.C. Department of Transportation, BC Safety Council; Transport Canada)

Registered Autodesk Developer – Review and comment on in-development and future technology applications

Registered Autodesk Author – review and comment on current versions of CAD & BIM applications

Registered Microsoft Developer – review and comment on current and future computer operating system and applications

Faculty Qualifications and Currency

Name of Faculty Member: Michael James Whitmore, AScT

Faculty Member Position: CADD Technology Instructor 50%

Affiliations:

- Applied Science Technologists & Technicians of British Columbia (23875)
- Canadian Institute of Mining, Metallurgy and Petroleum
- Vancouver Autodesk Users Society
- Autodesk User Group International
- Toastmasters International

Academic Credentials:

- Online / eLearning Certificate, Vancouver Community College
- Provincial Instructor Diploma Program, Vancouver Community College
- Basics of GIS, BCIT, Burnaby, BC
- Data Structures in 'C', BCIT, Burnaby, BC
- Introduction to 'C', BCIT, Burnaby, BC
- Advanced Autolisp Programming, BCIT, Burnaby, BC
- Autolisp Programming, BCIT, Burnaby, BC
- Intergraph (Microstation) C.A.D.D., BCIT, Burnaby, BC
- Personnel Management and Supervision, Canada Manpower, Vancouver
- Drafting (Architectural and Mechanical), Vancouver Community College

Industry Credentials and Experience:

Kwantlen Polytechnic University

- Instructor of Core, Mechanical, Civil, and Programming Courses

North Island College, Campbell River:

- Instructor, Drafting Certificate Program, Mechanical, Architectural, & Civil

Fluor Canada, Senior Designer, Plant Design Lead - Projects:

- Monterde Project Feasibility Study, Minera Pericones, Mexico
- Udokan Project Feasibility Study, Baikal Mining Company, Russia
- ILS Booster Station, Sociedad Contractraul Minera El Abra, Chile
- Highland Valley Mill Optimization, Teck/HVC, Logan Lake, British Columbia

Kilborn SNC Lavalin - Senior Design Supervisor - Projects:

- CADD Administrator
- Dome Open Pit Expansion, Placer Dome Inc., Ontario
- Grouse Creek Gold Refinery, Hecla Mining Co., Idaho
- Lone Tree Sulphide Mill, Lone Tree Mining Inc., Nevada
- Kidston Gold Mine, Placer Development Limited, Queensland, Australia

Commonwealth Construction Company, Mech. /Piping Drafter/Spooler - Projects:

- Fort Francis Paper Mill, Resolute Paper Products, Fort Francis, Ontario
- Afton Mines, Copper Concentrator and Smelter, Kamloops, British Columbia
- Powell River Pulp and Paper, Pulp Mill Expansion, Powell River, British Columbia
- Marcopper Mines, Placer Development Limited, Marinduque, Philippines
- Vancouver Wharves, North Vancouver, British Columbia
- Woodfiber Pulp and Paper, Squamish, British Columbia

External Industry-based Activities:

- Canadian Institute of Mining, Metallurgy and Petroleum
- Mentoring Program with ASTTBC (approval pending)

Internal Industry-based Activities:

- Trade Shows
- Expos
- High School Visits
- Skills Canada Judge

Research Activities:

- Integration of engineering and gaming software to create virtual reality environments.
- Investigating how to effectively complete engineering/construction projects remotely using current communication technology.

Internal Scholarly and Professional Activities:

- ASTTBC member (Applied Science Technologists & Technicians of British Columbia)
- British Columbia Drafting Technologies Articulation Committee
- AutoCAD training seminar in Las Vegas (5 days)
- Auto Desk Destination Desktop Activities (3 day workshop)

Three ways I stay Current:

- Provide technical engineering support to design/build companies.
- Create virtual reality experiences by integrating engineering and gaming software.
- Meet with engineering professionals at CIM events, trade shows, and monthly VAUS meetings.

Faculty Qualifications and Currency

NAME OF FACULTY

Paul Backus

FACULTY POSITION

NR1 – Non-Regular, Part-time

TECHNICAL SKILLS

- Experienced piper — mining, oil & gas
- Contractor — residential and commercial architectural construction
- Proficient in programs, — Autodesk AutoCAD, Autodesk Architecture, MicroStation, other CAD

  Microsoft Office Suite, Adobe, various website design programs

SUPERVISORY AND MANAGEMENT SKILLS

- Drafter/P&ID/CADD Technician/3D Designer/ACAD Support/Drawing Coordinator – Fluor Canada Ltd.
- University/College Drafting Instructor (Architectural, Mechanical & Civil) – BCIT & KPU
- Executive Member of the Vancouver AutoCAD Users Society (VAUS)
- Executive Member of the Toastmasters Club – Fluor Canada Ltd.
- Project Manager/Coordinator – 2 Vancouver residences
- Mechanical Drafter/Estimator/Piping Layout/Building Design - Kilborn Engineering Pacific Ltd.

EDUCATIONAL BACKGROUND

Kwantlen Polytechnic University Vancouver, BC	Architectural/Mechanical Drafter Revit Training
Fluor Canada Ltd. Vancouver, BC	Engineering Training Courses Fluor Canada Toastmasters Club First Aid Attendant
Autodesk University, U.S.A. San Raphael Cal, USA	CADD upgrading
Vancouver Community College Vancouver, BC	Provincial Instructor Diploma

Staff Qualifications and Currency

Todd Bolenback

Faculty Position

Part-Time Auxillary Staff position. 17.5 hours/week.

Academic Credentials

Bachelor's of Applied Science in Bio-Resource Engineering from UBC(1995).

Certificate in Drafting – Architectural and Industrial option from Kwantlen (1997).

Instructor Diploma Program courses. Courses taken include ID102, ID105, ID106, and ID103. Vancouver Community College (Dec-Mar 2005; May 2006)

Solidworks Level 1. Introduction to 3D modeling and design. BCIT Part-time studies (Apr-June 2004)

Industry Credentials and Experience

CADD Technologies – Program Assistant (Part-time) from Oct. 2005 – Current. Providing support for the CADD Tech dept. in terms of network/client support and maintenance\updates, troubleshooting, purchasing supplies, organizing maintenance of equipment and support contracts, assisting in the day-to-day operations of the program for the all semesters.

Fireplace Products International (Feb.1998- Oct. 2005). Intermediate Mechanical Designer for the Engineering Dept. at FPI working on both Wood and Gas Fireplace products for North America and Internationally.

Hipp Engineering – Mechanical Draftsperson Contract Position (Oct. 1997-Dec. 1997). Paper recycling plant mechanical layouts and General Arrangements.

Morrow Environmental Consultants – Engineer in training (EIT) (Aug. 1996-Jan 1997). Technical Field work. Worked on various soil and water contamination sites related to gas station and industrial sites performing remediation and site monitoring work.

O'Connor Associates – EIT position (Feb. 1996-Aug. 1996). Technical Field Work. Assisted with the operation and monitoring of a ground water treatment plant (running 24 hours/7days a week) as part of a remediation program on a former bulk fuel site.

Dept. of Fisheries and Oceans - Engineering (Major Projects Division). Summer work from 1992-1995). Maintenance, surveying, and minor design work for the maintenance and upgrades to fish hatcheries, fishways, and spawning channels throughout BC.

External Industry-based Activities (where relevant)

- Attend Career Fairs to promote the CADD Tech program.

Internal Industry-based Activities (where relevant)

This section indicates ways in which instructors create industry relevant curriculum and develop the contacts in the local industry for which the Program is noted.

- Support Skills Canada CADD competition at KPU for 5 years + with the installation and computer preparation required to run the event.

Research Activities

This section covers research in the broad sense as defined by Kwantlen.

Internal Scholarly and Professional Activities

In this section, instructors detail their work within the larger community of Kwantlen.

Three ways I stay current

Responses here indicate that full, regularized part-time and contract instructors maintain currency in the field/ discipline.

- In-house training with IET staff in the use of Windows Deployment Server to manage client images for lab updates (summer 2014).

- Took some KPU courses (auditing) since training funds are limited for the CADD Tech position to stay current and updated on Server 2008 R2 course (INFO 3160) client management and network configuration including management with Active Directory [Fall 2012] with Mohamed Shorfuzaman. Also a course (CISY 1215) on computer networking which included the Cisco Network Academy (CCNA) level 1 and 2 online training [Spring 2012] with Christopher Leung.

- Constantly coordinating the installation and licensing services for the latest CAD software to keep the labs as current as possible. Using software from Autodesk, Solidworks, Tekla, HSMworks, Intergraph, etc.

Computer Aided Design and Technologies (CADD)
Program Review (2015)

APPENDIX X

Action Research report – CADD

NOTES

In Transition: An exploration of a Vocational Drafting Program's progression into an Academic Model

Christina Heinrick

Education 811-5
Dr. Deborah Bartlette
Simon Fraser University

April 5, 2008

Introduction

Just about everything that is built is first drawn. Some drawings are quite simple in detail and may consist of objects like furniture, mechanical parts, and even doorknobs. However, many drawings can be quite complex, such as large structures like houses, bridges, high-rise apartments, and stadiums. The complexity of constructing a structure, like a stadium, can consist of more than 100 drawings filled with complex details and layouts. Whether the drawing is simple or complex, it serves one purpose. A drawing is simply a set of instructions for a builder. Instructions within drawings may include detailed plans, sections, and pictorials of objects along with sizes and specifications of materials.

Although it is generally the architects and engineers responsibility to mastermind the design of structures, drafters are most responsible for producing the majority of drawn work (drawings). Producing such complex drawings, a high level knowledge of codes, context, and concepts of drawing among all individuals who work on them is a must for objects to be drawn, and eventually constructed, correctly and safely. Therefore, the construction of many objects and structures are dependent on the drafter's knowledge of appropriate concepts and ideas related to the field. Outcomes developed from entry-level courses form the foundation for learning higher level drafting concepts. As indicated, the drafter's responsibilities can be great and learning the appropriate curriculum is critical to their success. Knowing what and how to draw is a key factor to any drafter's job and for many it all begins in a classroom.

Focus of Inquiry

I am a post-secondary education instructor in a drafting program. I have been teaching drafting for nearly fifteen years and have witnessed and been part of many changes within the program and the institution I work in.

The most recent change consisted of the institution's university status granted by the B.C. Government. Changes and developments have occurred for many reasons and have produced just as many outcomes. Not all outcomes have been intentional or expected. However, with most actions there is bound to some kind of re-action.

Currently, the drafting program I teach in is undergoing a major change to its structure, outcome, and delivery method. The changes that have occurred, and still occurring, are due to the drafting program's transition into an academic model and increasing the program length. Prior to the academic structure the drafting program operated for approximately 25 years in a vocational setting within a community college. Major changes have included re-structuring course content, delivery method, aligning the program with an academic model, and adding a second year. Although many changes have been made to the program itself, entry requirements for students have remained the same. Potential students entering the drafting program are required to have English 12 and Principles of Math 11 along with their high school diploma. Student who do not have a high school diploma, and who have not been in school for two or more years can write an entry examination and/or upgrade their requirements through the adult basic education program offered at the institution. Students entering the program come with tremendously diverse backgrounds that may include experience on computers, CADD (computer aided design and drafting software), and industry experience. Ages of students range from seventeen to seventy-five. Students graduate as Drafting/CADD Technicians.

Implementing an academic program did not only consist of re-structuring course content, it was also essential to obtain recognized credentials and transferability to other programs and institutions. The drafting program met this requirement by increasing its possible credential level to a diploma by adding a second year, giving students the opportunity to bridge into a variety of degree programs. In order for the drafting program to implement such credential and transferability options, additional higher level drafting specialty and academic courses were incorporated into the second year diploma option.

Students enroll into a two-year diploma program, but have the option to graduate after one-year with a certificate. They enter with a chosen specialty area to study, such as architectural, mechanical, or structural and specialty courses usually begin in the second semester. The pre-requisite for specialty courses is completion of

CORE. The term CORE refers to foundational courses based on basic fundamental concepts of drafting and CADD. CORE consists of four courses that include drafting fundamentals, CADD, office procedures and software, and a summative-based project course. Often, entry-level courses are known as foundational to support higher-level learning. Developing knowledge in CORE, or entry-level drafting courses can be critical to the application and achievement of developing knowledge of higher-level drafting concepts.

Many colleges have been integrating academic curriculum into their occupational and vocational programs in different ways. The approach taken in the drafting program is based on tandem courses, which entails taking two to four courses simultaneously. This type of structure is intended to "allow instructors to reinforce material from another course and to present similar issues from different perspectives" (Grubb et al, 1993, p. 25). However, such program changes can manifest in losses to the program as well as gains. Among possible gains, integrating academic curriculum into vocational programs can increase competencies for students, provide additional career opportunities for students, and produce more coherent programs (p. 25). Unfortunately, many down sides that have been shown to be stumbling blocks to teachers and students such as lack of resources, lack of leadership, and disciplinary specialization (p. 25).

Changes made to CORE consisted of increasing outcomes and re-structuring the old vocational format to fit into a new academic format. The re-structuring involved taking six vocational CORE courses and re-working them into four academic courses that would be taken simultaneously. The new courses also required alignment with the academic schedule and required the appropriate number of credits based on hours of instruction. In a typical four-credit course, the number of hours lost from the previous vocational mode to the academic mode was approximately 80 hours. By increasing the amount of outcomes in each course, generated by the re-structuring, along with cutting the amount of contact hours between student and teacher and lab time, an increased responsibility and accountability has been placed on students. Although the content and intentions remained somewhat the same as was in the vocational model, it was unknown if any learning outcomes would be compromised.

In addition to the re-structuring, changes to delivery methods were also implemented. Previous methods of teaching CORE courses were based on their interdependence and influence on each other. Each course influenced aspects of other courses and was taught in a consecutive manner, with the exception of the first two. The first concepts learned by drafting students are drafting fundamental concepts alongside CADD. The drafting fundamentals course begins with drawing small widget objects using a variety of projection methods. During the study of fundamentals, students are developing a foundation of CAD skills, visualization skills, and projection techniques. It is through learning various projection techniques that students learn to draw, and most importantly to visualize. Visualization refers to the "ability to comprehend imaginary movement in three-dimensional space or to manipulate objects in imagination" (French, as cited in Miller & Bertoline, 1991, p. 9). Next students would proceed to learn software and common procedures found in engineering offices. Last, students would continue to a course entitled, "Summative Project", which was intended to apply previous learned concepts and tools towards one final capstone project.

Developing new programs or curriculum can bring about many challenges for those involved. Keeping focused on the primary objective can easily become lost in the confusion of paper work, educational institutional politics (such as policies and guidelines), and time management. Assessing newly developed courses can also bring on many challenges and may reveal unanticipated actualities.

Research Question

"The primary goal of educators in the design/drafting field is to teach beginning drafting students the fundamental concepts of orthographic projection:"(Nwoke, 1993, as cited by Lawrenz and Zinser, p. 39). In addition to the primary objective of a drafting program, increased pressures for instructors to become more efficient and accountable have occurred. However, as stated by Gross-Stein, "To urge schools to become more efficient when there is no understanding of what makes a school effective" (2001, p. 94) makes it difficult to understand what was expected from the changes the drafting program made.

The purpose of this paper is to explore outcomes that have manifested from the drafting program sustained by the new academic model. The analysis will focus on gains, losses, and new opportunities that have surfaced so far in

order to assess whether or not the changes are in alignment with the initial intentions. Primarily, this study will focus only on CORE, as these foundational courses are vital to learning in higher level drafting courses.

Analyzing changes made to the drafting program, in an effort to discover the outcomes it has produced, could bring to light both positive and negative issues for the program and consequently the needs of the industry it serves. And, by bringing issues to light, appropriate adjustments can be made. Not making an effort to understand what is and isn't working could result in maintaining the status quo and the drafting program could become a victim of fate. This drafting program's survival is dependent on its success. Additionally, I feel uncovering the benefits is an important aspect to this analysis. Uncovering the weaknesses within the program may aid in improvements, but uncovering the strengths could be beneficial to the individuals involved in developing the new program. Individuals within the drafting department have undergone a difficult and arduous process for over three years and celebrations of successful components could prove to be supportive information.

Literature Review

Brookfield, Stephen D. (1995). *Becoming a Critically Reflective Teacher.* San Francisco, Jossey-Bass Publishers.

Becoming a Critically Reflective Teacher is a book written for teachers with the desire to understand the happenings within their classrooms. This book attempts to demystify the underlying issues that may occur in the classroom by taking you on a journey of critical reflection and the discovery of our own ideologies. The framework proposed to critically reflect on teaching practice, which is achieved by applying known theories to practice through the means of critical reflection, is based on an understanding of ourselves as learners and is the basis to understanding our teaching practice. It is made clear that becoming a critical reflective teacher "is a long, incremental, and often arduous process" (p. 82) and that there is no quick fix. It is a true example of life-long learning, reflection, and research.

Brookfield grounds his ideas on three intellectual traditions that include critical theory, critical pedagogy, and adult education. It is with this framework combined with methodologies that becomes the process of developing a critical reflective practice. Undertaking the critical reflective journey, as Brookfield would view it,

entails uncovering assumptions of our practice, and how they shape our lives and beliefs, and therefore our actions. By uncovering and challenging assumptions in our practice, described as "hunting assumptions", teachers can begin to understand not only what and how we teach, but also most importantly why. Hunting assumptions by analyzing our practice is accomplished by viewing our practice through a variety of lenses. These lenses include our own self-experiential reflection, viewing our teaching through the eyes of our colleagues and students, and through the readings of relevant literature. Viewing our practice through these lenses helps us to "recognize the discrepancy between what is and what should be" (p. 29).

I believe the theories outlined in this book provide a helpful guide not only for becoming critically reflective of our teaching practice, but also as a means to research. If I am examining what I do, reflecting on it, with the view of possible outcomes and change, then to me it is research. The research conducted for this report mirrors much of the theories Brookfield lays out, and is the reason I invited participation of students, colleagues, management, literature, and my self, and was means for my analysis.

Gross Stein, Janice (2002). *The Cult of Efficiency*. Toronto, Ontario, Niagara Falls, New York: House of Anansi Press Ltd.

This book focuses on current discussions of efficiency and how it plays out in public goods such as public education and health care. Gross Stein discusses this "political concept" and its relation to the way it comes out in thinking, talking, and acting. In helping to develop a sound understanding of the word efficiency, an exploration of its meaning over time was also explained.

A common theme stippled throughout the text regarding efficiency and its core meaning is based on looking deeper to its purpose. On many occasions the following words are written as a reminder and as a question to ask our self when determining what is the objective (end) and how efficiency can be the means to that end. These words to ask your self are, "efficient at what, for whom, and how well?" This theme is the core of the issues Gross Stein surfaces when discussing issues such as globalization, accountability, values, and rights.

This literature is relevant to the research of this paper as the question "efficient at what, for whom, and how well?" provides a good focus to be applied to my research question. Understanding the outcomes

of the drafting program's change is also about understanding the purpose of the changes. I feel the objectives of drafting course outcomes (end) can only be accomplished if the means have purpose and meaning to the objective. Understanding why changes are being made only show part of the picture, as illustrated by Gross-Stein in "The Cult of Efficiency", analyzing the affects of the changes creates by change shows a fuller picture.

Taylor, Charles (2003). *The Malaises of Modernity.* Toronto, Ontario : House of Anansi Press Ltd.

Taylor's "The Malaises of Modernity" focuses on three key concepts that appear to be creeping into mainstream society and affecting the way individuals perceive the world and the way they carry out their lives. The three key concepts are individualism, instrumental reason, and soft-despotism.

Individualism, described as the centering on the self, becomes the rationale for a higher purpose that society is becoming a "me-society". A consequence of individualism results in the lack of awareness and concern with the greater issues surrounding us. (p.14). The virtues that direct our intentions are sacrificed, as this form of self-centeredness and the rejection of traditions, values and nature become acceptable and merits credit in the eyes of society (Taylor, p.60). Modernity is the way people perceive the world and individualism has become the prominent perspective that we have come to assume is the right way. The motivation of achievement is directed by self-fulfillment, self-centeredness and self-indulgence, not by moral ideals.

Instrumentalism can be explained as economic rationalization (Taylor, 2003, p.5). This refers to cost effectiveness, productivity and concerns competition (2003, p.5). Taylor believes that individualism and economic objectives begin to conflict our values, beliefs and attitudes. He argues that soft-despotism (the loss of freedom) develops as a result (Taylor, p. 8). Soft-despotism becomes a vicious circle, as individuals feel helpless and de-motivated to act on important matters. Individuals feel they have little control and are guided by other forces such as survival (Taylor, p. 60) and the more they focus on their own lives and achievement, they begin to lose the purpose and meaning of their practice.

In conducting this research, it is important to remember what Taylor is saying when such drastic changes are being made on educational institutions and programs within. It's important to remember the notions of

individualism and instrumentalism for teachers feeling the pressures and constrains of new educational mandates. It would be all too easy to slip into that self-centered state when "survival" seems to be the critical factor to success.

Lawrenz, F. and Zinser, R. (2004). ***New Roles to Meet Industry Needs: A look at the Advanced Technological Education Program.*** **Journal of Vocational Education Research. Vol. 29, No.2. pp. 85-99.**

This article is an analysis of a collaborated effort between industry and post-secondary education focusing on new and improved Advanced Technological Education (ATE) programs. Programs that were involved in the study included high-technology outcomes such as those found in science and engineering disciplines. The programs examined were community college based one and two year programs. Additionally, the programs all provided opportunities for further education by bridging into four-year degree programs.

The program's development was based on collaboration with industry needs as indicated by their findings that "two major trends – the need for technicians by industry and the changing role of community colleges" exist (p. 85). It was suggested that occupational and technical programs offered are especially important in today's job market. It is with vocational programs that are commonly offered in community colleges that seem to have worked with industry, which creates a positive position for them to develop new and improve on existing programs, The data collected showed success in the incorporation of academic courses, effective curriculum, and found improvements in class organization and structure.

This research is especially important to the findings of my research, as there were many similarities in program disciplines as well as with similar efforts to integrate vocational and academic disciplines. The drafting program has also made a great effort to collaborate with industry program advisory committee (PAC). In specific areas of concern, such as class structure and curriculum, I feel the study and its outcomes provide a good framework for future considerations and may prove to be helpful in uncovering deficiencies.

Cohen, M. & Besharov, D. (2002). ***The Role of Career and Technical Education: Implications for the Federal Government*****. Office of Vocational and Adult Education, Paper commissioned for "Preparing America's Future: The High School Symposium.**

This paper explores the roots of career and technical education (CTE), which was formerly known as "vocational education" and its image throughout its history. CTE arose from the need for skilled workers in manufacturing industries, but has developed a perception that CTE was for the disadvantaged and lost popularity due to its lack of academic education. Vocational education programs were also criticized for deficits, such as low program completion requirements and insufficient homework loads by the U.S. Department of Education in 1994. "They also recommended that vocational education should emphasize preparation for post-secondary education including two-year colleges" (p. 16).

Cohen and Besharov also examine the need for technical and career education by discussing surveys and statistics regarding economic and unemployment status' of high school dropouts, high school completers, two-year college completers, and four-year college completers. Provided in their discussions was analysis of employers, and their needs. Although the higher level of education attained does indicate higher economic and employment status, the need for career and technical positions give hope to individuals with lower levels of education. Cohen and Besharov believe that students who might lose interest in school can benefit by CTE and may "enhance the chances for finding good jobs that lead to rewarding careers" (2002, p. 12).

I agree that CTE is an increasing demand in today's industry. Improving on existing programs in my field is important to keep the competitive edge and incorporate the changing needs of the employer and educational institutions. Although many of the studies in this paper were dated, and many CTE programs have incorporated academic courses, issues such as employer needs and values, and student attainment and engagement have remained similar. Also, by incorporating skills valued by industry, educational programs may become more attractive to students. This aspect is of special importance to me as student enrollment is always a concern.

Roberts, A.S (2007). ***Predictors of Future Performance in Architectural Design Education*****. Educational Psychology, Vol. 27, No.4. pp. 447-463.**

This research paper primarily focuses on predictors of success of students in an architectural school. Objectives of the architectural school include concerns similar to my own program, such as application of new tools and "mental manipulation of space" (p. 448). Predicting successful students upon admission is

the principal question for the research. The study included an analysis of three architectural cohorts and their cognitive styles and correlations of academic performances. The three cohorts were analyzed with respect to academic performance specifically in relation to cognitive styles, spatial ability, and former performance in secondary education.

The results of the study suggested that academic performance and spatial abilities are not good predictors for selecting successful candidates into the architectural school. However, cognitive styles showed an indication of variances between failing and successful students. This did not include students who withdrew from the program.

Although the drafting program I am currently analyzing is not specifically an "architectural school", many of the concepts introduced to first, and second, year students are consistent with architectural schooling. Also, one of the two cohorts participating in my study is enrolled in the architectural specialty of the drafting program.

This study is important and relevant to my own research as concerns of increased academic course-work and decreased course hours, which consequently decreased the amount of exercises and projects produced by students, has been one of the key issues of the faculty in the drafting department. Increased academic courses have created concerns of attainment in the program, where students have the opportunity to enroll into the program with the same pre-requisites as was needed in the vocational program. Also, it is of great importance to see suggestion that visualization skills, which indicate high spatial abilities, may not be jeopardized due to a decrease in the amount of visualization type activities.

Scribner, S., Anderson, M. (2005). ***Novice Drafters' Spatial Visualization Development: Influence of Instructional Methods and Individual Learning Styles.*** **Journal of Industrial Teacher Education. Vol. 42(2), pp. 38-60.**

The paper entailed the outcomes of a study to "determine whether novice drafters ability to visualize three-dimensional objects and identify two-dimensional representations of three-dimensional objects was influenced by (a) basic drafting instructional methods or (b) the students' learning styles" (p. 40). One aspect of the study contained information from previous related studies. Rogers (2004) compared the effectiveness of teaching using modular drafting methods, which was consistent with our "old" vocational model, with instructor-led methods,

which are consistent with our “new” academic model. Interestingly, he found no statistically significant difference in the outcomes of student’s spatial visualization abilities.

Although this study does include the ideas surrounding learning and teaching styles in conjunction with student outcomes, my focus and interest primarily lies in the ideas of spatial visualization development. As indicated, spatial visualization is a key component in the understanding of drawings and the ability to apply drafting projections. Student’s inability to visualize can cause them to fail in entry-level courses and subsequently in higher-level complex concepts that involve spatial visualization understanding and skills. As stated by Sorby and Baartmans (2000), “well developed spatial skills have been proven to be critical to technical person’s ability to develop creative design solutions to engineering problems” (as cited, p. 41).

Zeng, L., Sweet, Robert, Ansisef, Paul. (2003). ***Consequences and Policy Implications for University Students who have chosen Liberal or Vocational Education in Canada*****. Higher Education Policy. Volume 16 (1). pp. 55-85.**

Discussed in this research report is the analysis of immediate labour market consequences of having chosen a particular field of study for university graduates (p. 56). In the assessment, it appears that the “labour market favors vocational over liberal graduates with regard to employment status, income, job security and job satisfaction” (p. 55). Stippled throughout are debates that focus on the tension between cultural and instrumental values, or between liberal (human-centered) and vocational (skill training) education. The study also suggested that students graduating from a liberal education had better writing skills and the ability to lead or supervise others, more than the students graduating from vocational education. However, the vocational students more likely possessed the ability to learn and use new technology (p. 76).

This study contained important information with respect to the changes that have occurred in the drafting program. As the program has increased it’s liberal educational content, but maintained it’s vocational educational content, it appears that the program would be better rounded in terms of employability skills. Improvements to areas such as writing, leading, and learning abilities using new technology can all contribute to the success of a CAD drafter in today’s evolving industry. This study further supports the changes being made to the drafting program.

Braukmann, J. & Pedras, M. (1993). ***A Comparison of two methods of teaching visualization skills to college students*****. Journal of Industrial Teacher Education. Vol. 30 (2). Pp.65-81.**

In this research paper, the authors compare methods of teaching visualization skills as they feel this skill is of the up most importance in design and engineering. The research was based on a comparison of two different teaching methods on visualization and orthographic projection skills. The study was guided by the ideas that students who were taught by methods that incorporate three-dimensional computer software would show improvements in spatial visualization, orthographic projection skills, and that there would be a "positive correlation between scores on tests of spatial visualization and the scores on tests of orthographic projection skills" (p. 68) where students had previously completed a unit of orthographic projection study. The participants of the study included students from an engineering graphics and an architectural drafting course.

Data was collected by tests at the beginning of the course and at the end. Two weeks into the course, students were split into a control group, taught with traditional two-dimensional methods, and an experimental group, taught with three-dimensional computer software methods. The results of the study suggested no improvement on individual spatial visualization and orthographic skills. However, results of the analysis did suggest that the relationship between visualization and orthographic skills was significant in supporting each other and improving on those skills.

This study is significant to the findings of my research, as with the decreased hours in CORE courses, which many concentrate on skills such as orthographic and visualization skills, looking for new methods to teach these skills for improving the learning is always a concern. Utilizing computer software to teach visualization and orthographic skills would be an easy implementation in a lecture/lab-based program, but knowing that there would be no skill improvements is enlightening. The study also concluded that making better relationships between the two skills did show significant improvements on tests, which can be a focus of change for the my drafting program.

Data Collection

I conducted this research study to analyze the outcomes that have transpired through a drafting's program transitional period. It was important for me to include participants that were directly related to the program change, as well as those that were involved in the development of the new program. Following the model that Brookfield sets out in, "Becoming a Critically Reflective Teacher", I collected data that encompassed the opinions and thoughts of students (both current and graduates), colleagues, and management (Dean of Trades and Technology). In addition to the data collected from relevant participants, I analyzed two types of hard data. They include test scores from "old" model and "new" CORE course work, and feedback collected from current students one month after the CORE semester began.

Prior to collecting data, I prepared a research proposal, applied for ethics approval from my institution, drafted the necessary consent forms (See Appendix 1), and developed the questions to be used in the various data collection methods. Near the end of 2007, I acquired the necessary approvals and was able to proceed with data collection. During the first month of 2008, data collection began.

The first form of data collection was to survey past graduates. As it would have been difficult to call each one or get them all together one evening, I decided to email a survey link to twenty graduates from the previous year, class of 2006-2007. The students in this graduating year were aware of the changes that were being made to the existing program and were also aware that they were the last students to go through the drafting program in the vocational model. In order to ensure students consented to participating in the study, I sent the necessary information of the study along with the questionnaire, and stated that by completing the online survey it would be accepted as their consent to participate. I received replies to the survey from eight students.

The second collection was conducted as a focus group to existing students. In our first year running under the academic model we ran two cohorts, one for architectural, and one for structural. Both cohorts had just completed CORE courses and were approximately one month into their specialty courses. As many of the students indicated they would be interested in discussing the CORE semester with me, I thought a focus group, with some guiding questions, would result in a great discussion. The questions asked to the current student focus group were, for the most part, the same as the questions sent out to graduate students. By asking the same questions to both

groups of students, I would be able to acquire a better comparison of opinions on CORE outcomes. The number of participants that contributed their time was seventeen.

The third data collected was an interview I had with my dean. The interview was conducted one on one and was solely directed at uncovering the purpose for the drafting program's change in format. This information was not revealed prior to the mandated change or during the process of change itself. I believed that uncovering the intentions of this initiative would give me insight into the expected outcomes of the program from this level of management. In addition, results of this interview may expose areas of concern and future and further development opportunities.

The fourth data collection was conducted by questionnaire/interview with my colleagues. I first drafted a set of questions and distributed them among the three other drafting teachers in the program. Two of the three colleagues completed the questionnaire and the third requested to sit down in person to discuss. All of the participating teachers were also responsible for developing (and vital to accomplishing) the new program. They were all actively teaching in the first semester of the "new" program and all have substantial experience in teaching in the "old" model. The first semester was comprised of four courses and each teacher was responsible for one of them. I believed their collaborated answers pertaining to outcomes of the first semester would provide an important viewpoint. Two weeks following the initial questionnaire and interview, I sent out some follow up questions via email.

The last type of data was based on collecting existing paper work. The first was hard copies of feedback forms that were distributed one month after the CORE courses began. The intention of analyzing this feedback form titled, "How are we doing so far?" was to, hopefully, fill in any missing gaps that may have occurred while conducting the focus group with the current students, and I believed it would prove to be interesting to compare answers from students prior to completing CORE and after completing CORE. As the current student focus group meeting was held one month into their specialty courses, they would be better able to discern how well they are able to apply foundational skills and knowledge towards concepts found in higher level drafting courses. There were thirty-four students who filled in this questionnaire.

The second form of paper work is in the form of test scores. I collected test scores from previous years along with test scores from the first semester of the "new" model. One particular course, CADD 1100 - Drafting Fundamentals, has four identical quizzes used in the new model that were also used in the old model. As these quizzes are identical, I felt they would be beneficial in analyzing outcomes of basic drafting skills.

Data Analysis

I categorized the collected data into three parts for analysis. The first category will focus on the data collected from the graduate and current students survey answers. Although the method of collection was different for each group of students, the questions were similar in nature and would provide a comparison between the old and new model. In this section I will also refer to the student feedback that was collected early in the first semester of the new program. The second section will reflect the teacher colleague and management thoughts. The questions for this part were also similar and were collected the same way, which provided an interesting perspective of teachers and management viewpoints concerning the same issues. The third and final category will be an analysis of test results. Along with ideas formed through the literature review section, the lenses chosen for analyzing, as suggested by Brookfield, can "alert us to distorted or incomplete aspects of our assumptions that need further investigation" (1995, p. 29).

Analysis of student data (graduate and current)

Comparing the feedback from current students with the focus group discussion answers displayed a different tone regarding outcomes of the CORE semester. Students early in the program appeared to be content with the pace of courses and homework loads, and found working on four courses simultaneously manageable. I believe the concepts that were being introduced early in the courses were still basic and many students had previous experience of basic concepts. However, one month following the CORE semester, a general consensus from students that participated in the focus group discussion was frustration. Students indicated their frustration was due to the structure and inconsistencies of course work, course loads, and lack of ability to apply concepts to other courses. This was not a typical response from graduate

students. Although the teachers have all taught in the vocational model, and concepts being taught were consistent with the vocational model, it seems there was lack of continuity between courses and concepts.

While analyzing responses related to the structure of courses, it was found that many graduate students felt learning CORE courses one at a time more beneficial to their learning and understanding of concepts. Although some graduate students commented on forgetting some earlier concepts, and needed to be refreshed, they felt that their foundation of knowledge and skills was being built upon one step at a time. Current students, taking all four courses simultaneously, stated they were often confused of relevancy of concepts being taught in one course and how they should applied in others. This was indicated by comments such as, "too many teachers with different ideas" and "there was assumptions made from instructors on what we already know" (see Appendix 2).

CORE courses are intended to build basic knowledge and skills of drafting concepts. The objective of many of the courses is to apply skills from one course to another, and to build on basic concepts with higher-level ideas. It is understandable that failing to accomplish those intentions would create frustration, but more importantly it could result in lack of success in second semester specialty courses where foundational knowledge is applied. It was made clear that there was a lack of communication between instructors and development of ideas on how to achieve the intended goal of CORE courses.

Comments on teaching methodologies seemed typical based on the different model each group of students attended. Graduate students appreciated having taking all CORE courses with one teacher and the one-on-one instruction. I feel one-on-one instruction teaching methodology can cater to individual needs. Current students found that too many instructors teaching too many concepts were confusing. They also indicated the lack of communication between instructors made it difficult for them to understand the "big picture" of many ideas and overall objectives.

Current students were confused with regards to the objective of the "Summative Project". This course is currently taken simultaneously with other courses, which makes it difficult to base itself on previous learned concepts. As the course name indicates, the projects in the course are meant to be summative by applying concepts from other courses. However, the structure of courses does not support

that idea. It is evident that this course requires many more adjustments from the original course and structure that did support it's intentions.

The most unanticipated responses were that current students made that they were somewhat satisfied with their marks, despite their comments of frustration, confusion, and inconsistencies. I wonder how many of them felt they could have done better if they applied themselves more? Or perhaps, now that they are applying the knowledge learned in CORE to specialty courses they realize that the learning in CORE was satisfactory. Additional to that, with the findings in the research study conducted by Roberts, he concluded that visual thinkers, rather than verbal thinkers, do not appear to perform better (2007, p. 460). It is then possible that lack of visualization skills learning in the first semester does not affect the performance in specialty courses. However, I feel that this idea requires further investigation.

It makes sense that many current students felt the CORE courses could have been better learned if concepts were built on other concepts more consistently and fluidly. But, indications were that the majority of students were pleased with the academic format of the program. Offering more diverse curriculum and accredited courses seemed to be an interest that the old model lacked, and was noted by many graduates.

Colleague questions and responses

Prior to interviewing my dean, I did expect that her responses would reveal a different perspective than those displayed from faculty teaching in the drafting program. As little was known regarding the purpose of the mandated change, I was certain that the responses from faculty and management would show those differences. Although the questions and discussion topics were relatively the same, my purpose was to see another perspective and possibly discover the initiative for the changes to the program. As a result, it has become much clearer of the initiative and the reasoning behind it. I'm sure the faculty will appreciate knowing this as well.

It was discovered that enrollment issues, or lack thereof, is a concern and it is too early to anticipate what will become of the program if numbers don't improve. However, the dean feels we have succeeded in the transition process, albeit we came across some stumbling blocks. Accountability and credibility were

the biggest concern from management, and it was good to hear that those two issues have considerably improved. With the current shortage of technicians and technologists in industry, establishing an academic program with access to degree opportunities may be beneficial to industry needs and help increase enrollment by making the drafting program more credible. Zinser and Hanssen (2006) note that an academic track may attract students wishing to pursue degree completion as well as those who are hoping to acquire skills to obtain a technical position in industry (p. 28).

The faculty that were part of the development phase of the new program and were active teachers in the first semester faced many challenges during the first semester. The biggest challenge that faculty felt they were facing involved consistency issues among all four CORE courses. There was a tremendous amount of confusion created for students, as indicated, and it was difficult to get the faculty to coordinate their efforts. In analyzing faculty responses, it seemed that the pressure to get the program up and running was so great, that re-working the courses to be complementary of each other was forgotten. I believe many of the inconsistencies were based on teachers just doing their own thing. Brookfield notes that, "Wrenching ourselves out of habitual ways of interpreting our practice, and learning new ways of acting that correspond to new ways of seeing, are difficult, tiring, and piecemeal tasks" (1995, p 242).

I believe the lack of collaboration could have been the cause of just trying to get through the first semester, which was indicated as one of the successes in the questionnaire results (See Appendix 3). As well, as just "getting through" the first semester, some responses indicated that teachers felt there was no choice in the matter of the changing program. This is consistent with Taylor's notion of soft-despotism where individuals feel helpless and lose motivation as their efforts seem to go unnoticed and unrecognized (1991, p. 10). Nevertheless, the first semester was a great lesson for all involved and has now become the topic of many conversations among the faculty in meetings and in the hallways. I hope the conversations will soon turn into actions.

It was surprising that the faculty did not have a good understanding of the purpose of our mandated change. We were all mandated to change, given two years to accomplish the change, but did not really have a sense of why. In the end, the change was primarily sparked due to accountability issues within the program in terms of number of faculty versus number of graduating students. I believe this resulted in frustration by the faculty and

perhaps if we all had understood the purpose and meaning of the changes, the transition could have been smoother. It seems that the faculty currently have different visions and ideas of what the drafting program should look like, and I wonder if that is a partly resulting from the different ideas of why we were changing in the first place. I don't know if it was my research that sparked interest in knowing the meaning, as it was the focus of one question for faculty and management, but I do hope it will help us all to re-collaborate our efforts in the next year. It is still not understood why the rationale was not made clear to the department three years ago when notification of the mandate was given. Perhaps, we only needed to ask.

Test scores

After assessing the quizzes from last year and this year, I decided not to analyze a comparison between the two years. The course content in the new model has been re-structured and increased with less contact hours to teach them. I feel comparing the two years would not be fair and would not give me results that would be beneficial to this report. I feel it would be in the best interest of the students to create new quizzes that reflect the new courses. However, I wanted to note that in some instances, students were allowed to re-take quizzes they did not do well on. This in itself is quite telling.

Personal Reflection

It was difficult to decipher what I learned from the research and what I learned from reflection during this process. From the initial phases of this research project I have been reflecting on the many different elements that emerged in the daily life of teaching and automatically comparing with those from the days of the past. The research was not just analyzing collected data, it was literary research and analysis, it was researching into the types of questions that need to be asked, it was researching what I often take for granted. For me, there is a fine line in research and reflection. It would be difficult to separate them in this analysis, as one of my personal points of conducting this research was to find out "where do I go from here?" New questions have already emerged as a result of the findings of this study as new issues have surfaced during the course of the year.

In the beginning of this study process, I didn't know exactly what I would be looking for. I only knew that changes were happening in my program and it was affecting my practice. Changes to my practice seem to be an everyday occurrence and prior to conducting this research, I didn't feel it was necessary to understand how, what, and why things were changing. However, as I began to think about the consequences of the program's change, it became increasingly apparent that I needed to understand what was manifesting from those changes.

Originally, I felt that changes were manifesting strictly from the institutional needs. It seemed as though department changes were just means to their ends. Their ends being of the economic kind, in terms of accountability and efficiency, where I believed the ends should be industry and student focused. As a result, I started this research focusing on looking for the "bad" outcomes and only threw in the "good" for good measure. However, throughout the listening and reading that went along with this study, I realized that there were more opportunities and positive aspects to the change than when I first began. I then began to focus on those positive aspects. As Gross-Stein explains, "Efficiency is about how we should allocate our resources to achieve our goals, not what our goals should be" (2001, p. 68).

The goal, or end, of the drafting program's change was to create a successful academic drafting program with sustainable enrollment. Whether the initial intention from management was based on economics, it was still the faculty's responsibility to make it happen. Our primary concern should have been to ensure that the learning outcomes were satisfactory for the needs of industry and higher-level learning. Early in the semester, I believe, I was slipping into those notions that Taylor describes as individualism and soft-despotism. The loss of control definitely encouraged my losing sight of the bigger concerns and the focus was on my survival, not on those associated with the drafting program (1991, p. 4). The initial mandate left me, and many others, feeling that survival is the only goal. Not just survival of the program, but also survival of our employment. In fact, I was served a lay-off notice two months prior to the start of this study. Luckily, it was rescinded. However, it left me with uncertainties.

A revelation for me as a result of this research involved one of my main concerns. My intentions were to discover gains and losses that manifested throughout the transition. I had expected that the losses were going to be on compromised learning outcomes and gains would be minimal. I had assumptions that

the issues I would discover would be problems with few solutions, and unsolvable. However, I realized that the issues I did uncover were not as significant as I originally anticipated. If it wasn't for digging to the core (no pun intended) of issues created by the drafting program's transition, the program would maintain its status quo and continue to be at risk for failure. Uncovering issues are not losses; they are means to solutions and improvements.

One issue, or assumption, I had was that student's spatial visualization skills would be compromised due to the academic lecture-led instruction with decreased hours, and increased responsibilities on the students. This concern has been lightened due to the research developed from Scribner and Anderson in 2005. They concluded that there were no correlations between the methods of teaching drafting in an academic model versus the methods often found in vocational education (p. 51). The focus can now be on improvements and keeping our concerns on the overall objective, which is about the drafting technicians that are emerging. In the end, our objective is about bringing individuals into a practice and improvements along the course of a program may "keep students connected to their practice" (Cohen and Besharov, 2002, p. 12).

A new and unexpected issue has arisen during the process of writing this report. This new concern has brought about new questions, and perhaps a new research project. Prior to analyzing the collected data, it became apparent that the drafting program would likely lose approximately half the students for second year course. During the second semester of the four-semester program, many students were becoming aware that they could attain employment as a drafter immediately after the first year of studies. The industry is very busy and there is a high demand for skilled Cad drafters.

It is fortunate for the students that they could graduate with a certificate, but unfortunately it does not give much promise to the two-year diploma program. The results of many students leaving the program would entail offering second year courses as a part time option, in the evening, in the hopes to attract new and previous working graduates. As industry is currently in demand of skilled graduates and students are obtaining employment, the question of whether or not second year was necessary is brought to light and whether or not first year courses are equivalent with the previous vocational model in terms of content, contact hours, and student knowledge. Another consequence of losing students to industry is that if second

year courses do not meet enrollment criteria, there lay the possibility of losing the second year diploma option all together, further hindering one of the program's intentions of bridging into degree programs at this institution and others.

As a result of this new development, it is increasingly important to encourage the relationships between industry and education, as discussed by Lawrenz and Zinser. The current shortage of technologists and technicians in industry, and low enrollment in post-secondary, is an area that requires further examination. I agree with Lawrenz and Zinser that "In order to entice students to consider a technical career companies have to form alliances with other in the same or similar industry to promote the benefits of their technician jobs in schools and colleges" (p. 86). Employers often use post-secondary as recruiting grounds. In order for the drafting program to continue to provide graduates, we need assistance with student enrollment. Apart from many individuals contributing their time to sit on our PAC (program advisory committee), they have done little to support our efforts in recruiting students into our program. I believe more collaboration between industry and education can prove to be successful in helping each other with their needs.

The findings of this study couldn't have come at a better time, as a new CORE semester will begin in three months. I hope that the faculty within the program will benefit from the research and the next semester will run smoother. I will always keep in mind the words spoken by the students and the insight they gave during such a transitional time in my practice. Many other programs in my institution (specifically in the Trades and Technology Division) are also undergoing similar changes to their programs and I will be presenting this report to the division sometime in the next few months. I hope it will be as insightful and helpful for those making similar transitions as it was for me.

It is the hope of many drafting instructors that their students will gain the knowledge necessary to become proficient drafters and eventually develop into keen and insightful designers. Developing the "best" program or curriculum can be challenging, and sometimes rewarding. Whatever the reason for changing a program, it is important not to lose sight of the objectives. I think I forgot this somewhere along the way, but conducting this research reminded me of what is important. Perhaps that was the point.

Appendix 1

Action Research – Consent Form

LETTER OF CONSENT

(Graduate Students)

Title of Research Project: *Discovering the gains and losses in a Drafting Vocational program moving to an Academic format*

Principal Investigator: Christina Heinrick

Application #

Voluntary Participation:

Your participation in this research project is completely voluntary. You have the right to withdraw from the research study at any time. Even if you do not want to join the study, or if you withdraw from the study, you will still receive the same quality of instruction in the event you undertake second year courses in the Drafting Program. Your decision also will not jeopardize grades or studies at Kwantlen. Please don't hesitate to ask me any questions you may have about this research study. You may ask me questions now or in the future if you do not understand something that is being done. I am happy to share with you any new findings that may develop while you are participating in this study.

This consent form explains the research study you are being asked to join. Please review this form carefully and ask any questions about the study before you agree to join. You may also ask questions at any time after joining the study. See below for persons to contact.

Purpose of Research Project:

The underlying motivation of this research is based on a current course I am taking at SFU. The course is "action research" and is a required course to complete my Masters of Education degree. Although, it was this course that prompted me to do an action research project, I do feel the outcome of this project will be beneficial to both my own practice and the Drafting department's direction.

The focus of this research is based on the program's recent transition from vocational to academic. The program is now on a full academic calendar and schedule and follows strict guidelines for entrance and course completion. My

research is to focus on the positive and negative impacts of this change. With the information gained from this research I hope it will shed new light on new teaching practices in our new academic format.

All of the information you contribute to the study will be treated with strict confidence. After the study, you will be given the opportunity to read the final project paper.

Procedures:

Procedures that will be undertaken to collect data for this research project will be in the form of a questionnaire or interview (by phone) with me. Participants are invited to engage in both options, but are also free to choose one that suits them best.

Appendix 1 (cont)

Risks of harm/Discomforts/Inconvenience:

The possible risks of this type of study are low. However, in the event of discomfort during focus group discussions, participants are free to leave at any time.

Benefits:

The benefits of participating in this research will include possible modifications that will impact your learning in second year studies and knowing you were part of the development of our new Drafting Program.

Alternatives to Participation for Similar Benefits:

If either of the options listed above (questionnaire or phone interview) do not suit the type of data collection and participation you would like to contribute, an informal focus group meeting may be accommodated.

Confidentiality:
All data collected through this research project will be kept confidential. I will be the only person analyzing the material. Following the research project, all data will be destroyed.

Persons to Contact:

If you want to talk to anyone about this research study because you think you have not been treated fairly or think you have been hurt by joining the study, or you have any other questions about the study, you should call the principal investigator, at 604-598-6158 or call the Kwantlen Office of Research and Scholarship at 604-599-2373

Principle Investigator:

Christina Heinrick

(604) 598-6158

Christina.Heinrick@kwantlen.ca

Appendix 2

<u>Action Research – Student Questionnaire (Common to both study groups)</u>

(Results from the student questionnaires have been summarized to help in organization and clarification.)

Please answer the following questions and give explanations.

Indicate Program specialty and type you are currently registered in.

☐ ☐ ☐ ☐

Architectural Structural One-year Two-Year

1. Was the specialty you indicated your first choice?

Yes ☐ No ☐

2. Did the program (CORE) meet your expectations? Why or why not?

Yes ☐ No ☐

Comments from current students

- *Lack of outline and structure*
- *Difficult to balance work between all four courses*
- *Lack of knowing what to do*
- *Rushing to submit work, not receiving feedback in timely manner, therefore continuing to do same mistakes*
- *Nothing to do at times and overloaded at other times*
- *Marking criteria changed without informing*
- *Lack of communication and consistency between courses and instructors*
- *Teachers were honest*
- *Should CORE be run as academic courses*
- *Lack of context*

Comments from graduate students

- *Learned a fair amount of CAD and architectural concepts, however I wished it was a longer program*
- *I realized this was entry-level courses and felt the first few months were easy, then topics became more difficult*
- *I appreciated the one on one time. The handouts were helpful.*
- *I got what I needed from the courses and how to effectively use AutoCAD*
- *Support from teachers were helpful in my meeting my goals*
- *Definitely met my expectations and gave me the necessary skills to excel in the workforce*
- *While I was in the program, I felt the program was meeting my expectations. Once I obtained employment, I realized how little I still knew.*

Appendix 2 (cont)

3. Please comment on the methods of instruction you found most beneficial.

Results from current students

- *I like the idea of academic, but vocational seemed more job ready*
- *Obtaining credits*

- *Lots of hands on work*

Results from graduate students

- *The way the teacher walks through the procedures*
- *One-to-one instruction, small group lectures, hands-on practice, and self-initiated learning and project management*
- *Teachers tried to give all necessary information in order for us to gain more knowledge in our chosen specialty. Even when I was doing architectural, all the information had been given so I can finish my drawings on my own and before deadlines*
- *I thoroughly enjoyed the self-paced environment of the class. It made is so I was never bored in class since I was never slowed down*

3. Please comment on the methods of instruction you found detrimental to your learning.

Results from current students

- *Too many teachers*
- *Dependency/independency of concepts*
- *Summative project in wrong place*
- *Courses should not be dependent on each other when teachers are not communicating*

Results from graduate students

- *I thought the overall instruction was good, but I found one teacher unable to explain concepts well. I would eventually go and ask another instructor. This was frustrating.*

4. Do you feel you developed the necessary skills for application into specialty drafting courses? Why or why not?

Results from current students

- *Too many teachers and too many concepts*
- *Difficult to see what concepts were to be applied in different courses*
- *Didn't understand the objective for the summative project*
- *Courses should be dependent for other courses more*

Results from graduate students

- *I felt I had a good grasp of concepts when starting my specialty courses*
- *Sometimes had to ask questions about CAD and how to draw certain things because I forgot*

Appendix 2 (cont)

- *Became much quicker at using CAD*

Did the pace of the program (CORE) and course structure hinder or enhance your learning? Please explain.

Comments from current students

- *Pace too fast*
- *Not enough time to talk to instructors*
- *Core pace bumpy, too slow, too fast, too slow, too fast*
- *General assumptions made from instructors on what we already know*
- *Lecture and lab times not specific or consistent*
- *Difficult to apply skills*
- *Vocational aspects still present*
- *Poor timing for tests*

Results from graduate students

- *60% indicated just right (daytime)*
- *80% indicated just right (evening)*
- *20% indicated too fast*
- *20% indicated too slow*

87% indicated there was enough lab time to complete assignments

5. How did you find it learning multiple foundational courses (CORE), one at one time or simultaneously? Why?

Results from current students

Difficult because of communication between teachers

Like an avalanche, nothing to build on

Unorganized

Too many teachers with different ideas

Forced me to become very organized

Too slow in the beginning, too rushed at the end of semester

What was the point of the summative project? Should be about the learning, three courses supporting one course

Too many concepts at once

Some teachers felt they were crossing the line of introducing concepts of other courses

Results from graduate students

Questions posted: "Did you find learning each CORE course in succession (as opposed to taking all CORE courses at the same time) conducive to your learning of the context?"

- *100% of participants indicated they found the model supportive of their learning*
- *Taking courses separately at each time causes more concentrating on each subject and prevents mixing up things*
- *It was laid out just right*

- *I was able to complete these at my own pace and to build upon the skills in a logical progression*
- *I found that if there was too big of a break, you had to re-teach yourself stuff you were already supposed to know*
- *Every CORE has different approach, that means that different commands and tips for drawings and assignments*
- *It was good starting with the very fundamentals of drafting/cad and from there on we explored more advanced techniques*

6. Did you obtaining the marks you expect? If not, please explain.

Results from current students

- *65% of students were happy with their marks up to this date*
- *25% not happy with their marks up to this date*
- *10% not sure*

Results from graduate students

- *29% somewhat satisfied with their education*
- *43% satisfied with their education*

29% very satisfied with their education

7. What would the perfect Drafting Program look to you?

Results from current students

- *Keep CORE vocational, specialty courses academic*
- *Limit the number of instructors teaching CORE courses*
- *Structure the CORE courses so they make sense*
- *Build on concepts rather than just learn each one independently*

Results from graduate students

- *Two years may be too much. Students need to learn foundation concepts and go to work to learn their specialty*
- *Offer more competitive software that is offered at other institutions*
- *Lack of credits in vocational not good. It makes it impossible to continue education in this field. Also there is lack of connections to professional firms that may hinder being recognized by industry.*

Appendix 3

Action Research – Faculty and Dean questionnaire (common questions)

(Results from the faculty questionnaires have been summarized to help in organization and clarification.)

1. What do you feel has been the biggest success resulting from the first semester of the new drafting program?
   - *Accomplishing the goal set out for us*
   - *Surviving the first semester*
   - *Finding our weaknesses*

2. What do you think is the biggest benefit of becoming an academic program?
   - *More material covered, primarily through homework*
   - *Increased student accountability and responsibility*
   - *Opportunity to move into other educational areas*
   - *Credentials*
   - *Transferable credits*
   - *Forces faculty to keep on track and focused*

3. What do you think has been the least beneficial to moving into an academic program?
   - *Type of work assignments*
   - *Inability to even out workload*
   - *Increased workload*
   - *Lack of consistency*
   - *Less student contact time*
   - *More instructor-centered*
   - *Too much change at once, difficult to organize*
   - *Stress of transition, frustrating*
   - *More demanding on students*

4. What has been the most difficult aspect for you professionally?
   - *Preparing formal lectures*
   - *Prescribed curriculum*
   - *Difficult to keep up*
   - *Rigid structure with less hours*
   - *Having to mark with authentic assessment, previous marking based on Mastery/Fail*

5. What has been the least difficult aspect for you professionally?
   - *Getting organized with a planner*
   - *Adjusting to schedule*
   - *Similar and familiar curriculum to apply in new structure*
   -

6. Do you feel the new program meets the student's needs in learning CORE concepts?
   - *Yes, they are now learning to meet deadlines*
   - *Maybe in the end, but a frustrating process for students and faculty*
   - *Increased content that is better suited to the career and practice*
   - *Similar to old model, however, I don't think the new model has made the students as knowledgeable and comfortable with the use of CAD and techniques of drafting*

Appendix 3 (cont)

7. Do you feel the change was in the best interest of student learning or program survival?
   - *Too early to say*
   - *Had to meet needs of institution or they would not be ANY student learning*
   - *I feel in the long run, once we work out the bugs, it will be in the best interest of student learning.*

8. What would you do differently next time CORE course are taught?
   - *Would try to streamline concepts of courses and make them build on previous concepts*
   - *Make more consistent with other courses*
   - *Communicate with other instructors*

9. Why do you feel the program was mandated to change?
   - *To keep academic programs full*
   - *Interest of academic vs. trades*
   - *For bridging and transferable credits*
   - *For student's future education goals*

10. Do you feel we have reached the goals originally set out for us?
    - *Yes, we are a fully operational academic program as required*
    - *Almost, we are still at risk of closure due to enrollment issues*
    - *Not if second year courses don't run. Too early to tell*

11. If you were to conduct similar research, what question would you want answered?
    - *What were the initiatives of management's mandate*
    - *Administrative viewpoint and evaluation*

Appendix 4

<u>Action Research –Management questions and responses</u>

1. What was the main reason for the initiative of the drafting program's move to an academic model?

   - *Accountability issues -Number of FTE's produced vs. number of faculty FTE's*
   - *Student completion rates*
   - *Opportunity for students to obtain credentials*

2. Do you feel the Drafting Programs has reached the goal of becoming an academic program?

   - *Still transitional - too early*
   - *Curriculum yes, program fragile*

3. What do you think would be the biggest loss to student learning in the new model?

   - *Flexibility of instructor time and teaching methods*

4. What do you think would be the biggest gain to student learning in the new model?

   - *Structure more efficient*
   - *Known and visible outcome*

5. Do you feel the change was in the best interest of student learning or program survival?

   - *Both*

6. If you were to conduct similar research, what questions would you want to answer?

   - *Do we change programs based on what we know, expect, or what we want?*
   - *Have we taken in account the gaps along the way?*
   - *On what principles are the changes being made to a program?*
   - *Why are we doing this and is it necessary?*

7. Do you think it was necessary to change the program format to its current state, or would revising and cleaning up the old program have similar results?

   - *No, it was clear that the program needed significant changes to address the technological requirements, as well as employer needs. If we were to "clean up" what would that have looked like?*

Appendix 5

Action Research – Sample questions from feedback "How are we doing so far?"

(Not all questions on this feedback where relevant and therefore not shown here)

1. How are you finding the depth of the information being delivered in the courses?

Courses	Drafting Fundamentals	Summative Project	CADD Software	Office Software/Procedures
Too easy				1
Could be more challenging	5	2	3	9
Just right	23	25	18	19
A little too hard	3	6	5	1
Too difficult	1		2	

2. Are you able to get enough help from the instructor when you need it?

Courses	Drafting Fundamentals	Summative Project	CADD Software	Office Software/Procedures
Yes	24	22	20	24
Most of the time	1	10	10	6
Sometimes	1	1	1	2
Almost Never				
Not Enough				

3. How are you finding the homework load?

Courses	Drafting Fundamentals	Summative Project	CADD Software	Office Software/Procedures
Need more homework				

(yeah, right)				
I could handle slightly more			2	3
Just right	16	23	17	21
A little too much	13	10	11	8
Way too much				

Appendix 5 (cont)

4. Are the lectures clear and well prepared?

Courses	Drafting Fundamentals	Summative Project	CADD Software	Office Software/Procedures
Yes	18	22	17	19
Most of the time	11	7	10	18
Sometimes	1	2	4	1
Almost Never		1		
Not Enough		1		

5. Are assignments clear and easy to follow with clear due dates?

Courses	Drafting Fundamentals	Summative Project	CADD Software	Office Software/Procedures
Yes	15	10	10	21
Most of the time	10	18	16	10
Sometimes	5	9	6	2
Almost Never	1		1	
Not Enough				

6. Is the marking of assignments helpful (constructive criticism)?

Courses	Drafting Fundamentals	Summative Project	CADD Software	Office Software/Procedures
Yes	16	15	17	19
Most of the time	7	12	9	9
Sometimes	4	5	3	3
Almost Never				
Not Enough				

7. Do you use the labs after hours (4-10pm)?

- 11 - Yes, I often stay after 4pm
- 11 - Not yet, but I plan to used it more when we get bigger projects
- 12 - I don't need to use the labs, I use AutoCAD at home
- 1 - I don't need to use the labs, I finish all my assignments during lab time
- 3 - I did not know we could use the labs until 10pm
- Yes, I often stay after 4pm
- Not yet, but I plan to used it more when we get bigger projects

Appendix 5 (cont)

- I don't need to use the labs, I use AutoCAD at home
- I don't need to use the labs, I finish all my assignments during lab time
- I did not know we could use the labs until 10pm

Resources

Hanssen, C. and Zinser, R. (2004). *Improving Access to the Baccalaureate.* Community College Review. Vol. 34, No.1. pp. 27-43.

Miller, C. & Bertoline, G. (1991). *Spatial Visualization Research and Theories. Their importance in the Development of an Engineering and Technical Design Graphics Curriculum.* Engineering Design Graphics Journal. Vol. 55, No.3. pp. 5-14.

APPENDIX Y

CADD TECHNOLOGIES COURSE DESCRIPTIONS

CADD 1100 CR-4
Drafting Fundamentals
Students will set up drawings and use geometric construction and appropriate line-types to produce orthographic and pictorial representations of models. They will use projection techniques to construct intersections and developments of various three dimensional shapes. Students will apply sections and conventions and use details to enhance the representation fill-in title blocks and use quality control procedures to complete drawings. They will prepare a mechanical assembly drawing.

Transferable (refer to transfer guide)

CADD 1110 CR-4
Summative Project
Students will follow the design process and use sketches, standards and codes to produce a set of drawings that would be suitable to mechanical, industrial or architectural projects. They will produce site and other required plans along with cross sections and elevations. Students will extract details and produce schedules. They will select appropriate presentation scales and apply annotation, dimensions and symbols as per industry standards.

Transferable (refer to transfer guide)

CADD 1150 CR-4
Computer Aided Drafting & Design (CADD) Software
Students will operate CADD software and use advanced construction techniques. They will use CADD software to perform analytical calculations, and to import and export data using external references and other techniques. Students will create three-dimensional (3D) solid and wire frame models. They will use presentation techniques to create two-dimensional (2D) images and 3D rendered images from 3D models. Students will customize the software user interface.

Transferable (refer to transfer guide)

CADD 1160 CR-3
Introduction to Office Procedures and Software
Students will use office software with CADD software to exchange data and graphics. They will follow basic office procedures to produce memos, change orders, and to follow document control and revision procedures. Students will investigate a variety of disciplines in the Drafting/CADD field and write a report or give a presentation on the discipline of their choice. Students will apply geometric, algebraic, and trigonometric principles to solve problems. They will develop educational plans and run student meetings.

Transferable (refer to transfer guide)

CADD 1161 CR-4
Office Procedure
Students will use office software with CADD software to exchange data and graphics. They will follow basic office procedures to produce memos, change orders, and follow document control and revision procedures. Students will describe a variety of disciplines in the Drafting/CADD field, develop a personal educational plan, and prepare a technical report. They will apply geometric, algebraic, and trigonometric functions to solve problems. Students will employ computer technology skills for office software and file management, describe sustainable design and practices, and explain project management procedures. They will apply descriptive geometry procedures to solve problems, and apply surveying fundamentals to calculate contours, latitude and departure. Students will use photo editing software and create an e-Portfolio.
Not transferable

CADD 2100 CR-4
CADD Graphics and Models: Rendering and Animation
Students will render 2D graphics and create 2D perspectives. They will apply color, texture and shadows. Students will create digital 3D models, build physical models from common materials and use photo editing software to insert models into photographs. They will import 3D models into rendering and

animation software and apply lighting and camera locations. Students will create motion paths, create flythrough paths and create assembly animations. They will give presentations of completed projects.

Prerequisites: CADA 1250 or CADI 1250 or CADM 1250 or CADS 1250

CADD 2110 CR-4
Surveying and Site Work
Students will apply surveying fundamentals and use surveying equipment to collect coordinates and elevations. They will apply algebra, geometry, trigonometry and introductory calculus to perform surveying calculations. Students will prepare a subdivision drawing and indicate boundaries, access, roads and services. They will indicate contour lines and perform cut and fill calculations. Students will prepare a site layout, determine site grading and drainage, prepare retaining walls and outlines of buildings to complete a site plan drawing. They will use 3D modeling software for Civil applications.

Prerequisites: (CADD 1100 or DRAF 1100) and (CADD 1110 or DRAF 1110) and (CADD 1150 or DRAF 1150) and (CADD 1160 or DRAF 1160 or DRAF 1270)

CADD 2160 CR-4
Professional Practice for Design and Drafting
Students will explain document control procedures and apply a document change-manage process. They will follow health and safety procedures, describe the effects of office ergonomics, and follow appropriate office deportment related to design and drafting. Students will explain liability issues, follow ethical principles, and explain basic project management principles related to design and drafting. They will identify the roles of Engineering and Architectural professionals.

Prerequisites: CADD 1160 or DRAF 1160

CADD 2210 CR-4
Document Control and Web Portfolio
Students will explain the need for document control and identify roles and responsibilities in document control. They will categorize types of documents and their purposes and implement document control procedures. Students will set up document control websites, create information websites and create portfolio websites. They will participate in online meetings with document and application sharing. Students will give presentations of completed projects.

Prerequisites: CADA 1250 or CADI 1250 or CADM 1250 or CADS 1250

CADD 2220 CR-4
Sustainable Design
Students will develop an awareness of sustainability issues and how they influence sustainable practices in design. They will identify regulatory bodies and their roles, identify environmental impact standards and describe sustainable design certification. Students will evaluate and analyze green design strategies, product lifecycle and sustainable materials and systems through a variety of methods including site visits. They will interpret output from a variety of efficiency testing software and conduct cost-benefit analysis of sustainable practices. Students will incorporate sustainable materials, systems and fabrication/construction processes on a project.

Prerequisites: Completion of Citation in CADD Technologies and Certificate in CADD Technologies or permission of Instructor

Transferable (refer to transfer guide)

CADD 2250 CR-4
CADD Customization and Networks
Students will explain the need for CADD customization and identify programming languages used with CADD software. They will determine the appropriate programming language for a variety of CADD custom functions, use programming to customize CADD software and use scripting and macros. Students will explain the fundamentals of operating systems and describe command line interfaces and system utilities.

They will install CADD software, set-up multi-user CADD local area network (LAN) with client/server, apply permissions and install printers.

Prerequisites: CADA 1250 or CADI 1250 or CADM 1250 or CADS 1250

CADA 1200 CR-3
Architectural Fundamentals
Students will study and apply architectural theory, the architectural development process, and the design process related to construction. They will study historical practices, methods and materials, identify current practices, and use tools to forecast future trends. Students will study basic building and material terminology. They will study the physical qualities, manufacturing processes, installation techniques and the organizational processes of construction materials and methods. Students will study sustainable development initiatives such as LEED. They will apply and analyze energy efficiency modeling software, and study building envelope design, materials, and create detail drawings.

Prerequisites: (CADD 1100 or DRAF 1100) and (CADD 1110 or DRAF 1110) and (CADD 1150 or [DRAF 1150 plus DRAF 1306]) and (CADD 1160 or DRAF 1160)

CADA 1201 CR-4
Architectural Principles
Students will study and apply architectural theory, the architectural development process, and the design process related to construction. They will study historical practices, methods and materials, identify current practices, and use tools to forecast future trends. Students will study basic building and material terminology. They will study the physical qualities, manufacturing processes, installation techniques and the organizational processes of construction materials and methods. Students will study sustainable development initiatives such as LEED. They will apply and analyze energy efficiency modeling software, and study building envelope design, materials, and create detail drawings.

Prerequisites: (CADD 1100 or DRAF 1100) and (CADD 1110 or DRAF 1110) and (CADD 1150 or [DRAF 1150 plus DRAF 1306]) and (CADD 1160 or CADD 1161 or DRAF 1160)

CADA 1210 CR-4
Single Family Residential
Students will study architectural design and residential plan set development in a working environment scenario involving the design of single family residence. They will work within a design team and complete a full plan set that will be building permit ready. Students will produce a set of drawings that includes site plan, floor plan, foundation, framing schematic, section and details, and exterior elevations. They will base their project on a unique client portfolio and custom design criteria. Students will prepare a sustainability and energy efficiency analysis of their design. They will make a presentation to the class of their completed project.

Prerequisites: (CADD 1100 or DRAF 1100) and (CADD 1110 or DRAF 1110) and (CADD 1150 or [DRAF 1150 plus DRAF 1306]) and (CADD 1160 or DRAF 1160)

CADA 1220 CR-4
Commercial Buildings
Students will develop the design and then prepare a site plan, building plans, schematics, sections and details for a commercial building. They will use glazing and storefront components, apply codes and standards, and prepare interior and exterior elevations. Students will develop schedules and specifications, explain coordination procedures to ensure completion of the project, and give a presentation of the project. They will explain Leadership in Energy and Environmental Design (LEED) standards and its applications.

Prerequisites: (CADD 1100 or DRAF 1100) and (CADD 1110 or DRAF 1110) and (CADD 1150 or [DRAF 1150 plus DRAF 1306]) and (CADD 1160 or DRAF 1160)

CADA 1250 CR-4
Introduction to Building Information Modeling (BIM) Software for Architectural
Students will identify types of 3-dimensional (3D) Architectural software. They will use 3D sketch software to create and combine assemblies to produce a building model. Students will use BIM software interface and identify principles of creating a building information model. They will identify families of components, set up a project, and set up views. Students will apply annotation and scheduling.
Prerequisites: (CADD 1100 or DRAF 1100) and (CADD 1110 or DRAF 1110) and (CADD 1150 or [DRAF 1150 plus DRAF 1302 plus DRAF 1306]) and (CADD 1160 or DRAF 1160)

CADA 2100 CR-4
Multi-Family Residential
Students will follow best practice design development procedure to prepare a site plan, floor plans, and a foundation plan for a multi-family residential building. They will prepare framing schematics, sections and details, and exterior elevations and material schedules. Students will prepare documents to applicable codes and standards, follow procedures to ensure completion and coordination of the project and present completed construction documentation. They will prepare and present project features for public reviews.

Prerequisites: Certificate in CADD - Architectural Specialty or DRAF 1110 and DRAF 1210 and DRAF 1310

CADA 2150 CR-4
Building Information Model (BIM) Software for Architectural -Project
Students will create advanced components, apply interior fittings, and use Building Information Model (BIM) software to output, input and link information. They will apply collaboration and design integration, use massing and phasing tools, and apply design options. Students will apply detailing, apply site design, and use advanced rendering techniques. They will use BIM software to complete a project.

CADI 1200 CR-3
Industrial Applications
Students will identify industrial processes and codes and standards. They will describe industrial design development, identify information from external resources, and describe types of drawings. Students will prepare a flow chart and a general arrangement, and identify materials handling equipment and components. They will identify piping equipment and components, and participate in industrial field trips.

Prerequisites: (CADD 1100 or DRAF 1100) and (CADD 1110 or DRAF 1110) and (CADD 1150 or [DRAF 1150 plus DRAF 1306]) and (CADD 1160 or DRAF 1160)

CADI 1210 CR-4
Conveyor Systems
Students will identify types of transfer decks, apply design criteria, and identify design principles to prepare a transfer deck. They will identify types of conveyors, draw and detail a belt conveyor, and prepare chute details. Students will apply appropriate drafting practice.

Prerequisites: (CADD 1100 or DRAF 1100) and (CADD 1110 or DRAF 1110) and (CADD 1150 or [DRAF 1150 plus DRAF 1306]) and (CADD 1160 or DRAF 1160)

CADI 1220 CR-4
Process Piping
Students will prepare piping and instrumentation diagrams, lay out a general arrangement, and prepare details of piping equipment. They will develop pipe routing and follow design principles to output piping orthographics and isometrics. Students will produce isometric spool drawings and apply appropriate drafting practice.

Prerequisites: (CADD 1100 or DRAF 1100) and (CADD 1110 or DRAF 1110) and (CADD 1150 or[(DRAF 1150 plus DRAF 1306]) and (CADD 1160 or DRAF 1160

CADI 1250 CR-4
Introduction to Industrial 3-Dimensional Modeling Software
Students will identify 3-dimensional (3D) software for industrial and mechanical applications. They will use 3D parametric modeling software to make effective sketches, model parts and generate 2- dimensional (2D) drawings. Students will create assembly files, presentation drawings and assembly drawings. They will use process piping software to place components into a piping model, create orthographic piping working drawings, and to automatically generate piping isometric drawings with a bill of materials. Students will use piping and instrumentation diagram (P&ID) software to create piping schematics.

Prerequisites: (CADD 1100 or DRAF 1100) and (CADD 1110 or DRAF 1110) and (CADD 1150 or [DRAF 1150 plus DRAF 1302 plus DRAF 1306]) and (CADD 1160 or DRAF 1160

CADM 1200 CR-3
Fundamentals of Manufacturing and Fabrication
Students will use manufacturing terms and definitions, follow safety procedures, and describe the characteristics of manufacturing materials. They will identify the roles of manufacturing professionals, and describe the manufacturing process flow. Students will identify manufacturing and fabrication equipment, identify heat treatments, and describe manufacturing and fabrication processes. They will describe assembly processes, identify sources of parts and materials, use measuring tools and techniques and apply geometric tolerance and dimensioning. Students will describe tolerancing and its effect on processes. They will identify welding processes, and identify common material stock shapes.

Prerequisites: (CADD 1100 or DRAF 1100) and (CADD 1110 or DRAF 1110) and (CADD 1150 or [DRAF 1150 and DRAF 1306]) and (CADD 1160 or DRAF 1160)

CADM 1210 CR-4
Component Assembly and Details
Students will apply information from reference sources, follow relevant codes and standards, and follow Enterprise Resources Planning (ERP) and Material Resources Planning (MRP) procedures. They will describe the design intent of the assembly, source manufactured components, and prepare assembly and sub-assembly detail drawings. Students will prepare drawings of discrete parts, weldment drawings and sheet metal drawings. They will apply methods of dimensioning and specify machining techniques. Students will follow document control procedure for revised parts and identify quality control procedures. They will prepare bill of materials and material pull sheets, and follow document control procedures.

Prerequisites: (CADD 1100 or DRAF 1100) and (CADD 1110 or DRAF 1110) and (CADD 1150 or [DRAF 1150 and DRAF 1306]) and (CADD 1160 or DRAF 1160)

CADM 1220 CR-4
Integrated Machine Design Systems
Students will identify the systems involved in machine design, and differentiate between the design concepts; function and form. They will describe alternative approaches to problem solving and the relationship to design. Students will identify structural, mechanical, electrical, electronic, and electro-mechanical principles related to machine design. They will identify software platforms used in industrial applications, apply trouble-shooting techniques, perform diagnostics, and perform analysis of basic designs.

Prerequisites: (CADD 1100 or DRAF 1100) and (CADD 1110 or DRAF 1110) and (CADD 1150 or [DRAF 1150 and DRAF 1306]) and (CADD 1160 or DRAF 1160)

CADM 1250 CR-4
3 Dimensional (3D) Parametric Solids Modeling Software
Students will identify 3D software for each discipline, and list types of 3D parametric modeling software. They will use 3D parametric software interface and viewing commands and use 2 dimensional (2D) sketches to create 3D solids and surfaces. Students will create multiple configurations using tables and apply top-down modeling techniques to create assemblies with constraints. They will identify output

formats and their applications. Students will create 2D rendered pictorial drawings, exploded assembly drawings and animation of assemblies.

Prerequisites: (CADD 1100 or DRAF 1100) and (CADD 1110 or DRAF 1110) and (CADD 1150 or [DRAF 1150 and DRAF 1306]) and (CADD 1160 or DRAF 1160)

CADS 1200 CR-4
Introduction to Structural Drafting and Concrete
Students will describe the structural discipline and apply information from appropriate reference drawings and design notes to prepare concrete floor plans and foundation details, and apply reinforcing information. They will identify concrete characteristics, apply geotechnical information and identify principles of foundation design to prepare anchor bolt and equipment pad details. Students will identify precast / prestressed concrete and calculate reinforcing / concrete quantities. They will develop sections and elevations from plans.

Prerequisites: (CADD 1100 or DRAF 1100) and (CADD 1110 or DRAF 1110) and(CADD 1150 or[(DRAF 1150 plus DRAF 1306]) and (CADD 1160 or DRAF 1160)

CADS 1210 CR-4
Structural Steel
Students will apply structural steel shapes, prepare line diagrams and apply bridging and open web steel joist extensions. They will prepare bolted and welded steel connections and prepare shop drawings. Students will calculate structural steel quantities.

Prerequisites: (CADD 1100 or DRAF 1100) and (CADD 1110 or DRAF 1110) and (CADD 1150 or[(DRAF 1150 plus DRAF 1306]) and (CADD 1160 or DRAF 1160)

CADS 1220 CR-4
Wood Frame and Heavy Timber
Students will apply wood framing fundamentals. They will prepare drawings and details for a bridge approach span, a bridge main span and an abutment for a timber bridge. Students will indicate high and low water levels and prepare timber connections and an expansion joint detail.

Prerequisites: (CADD 1100 or DRAF 1100) and (CADD 1110 or DRAF 1110) and (CADD 1150 or [DRAF 1150 plus DRAF 1306]) and (CADD 1160 or DRAF 1160)

CADS 1250 CR-3
Introduction to Building Information Model (BIM) Software for Structural
Students will identify types of 3-dimensional (3D) used in structural applications. They will use 3D sketch software to model structural components and combine components to create a building model. Students will identify fundamentals of building modeling and will use Building Information Modeling software (BIM). They will identify hierarchies of components, set up drawings and output, import and export information. Students will apply annotation and scheduling.

Prerequisites: (CADD 1100 or DRAF 1100) and (CADD 1110 or DRAF 1110) and (CADD 1150 or [DRAF 1150 plus DRAF 1306]) and (CADD 1160 or DRAF 1160)

CADS 1251 CR-4
Building Information Modeling (BIM) for Structural
Students will identify types of 3-dimensional (3D) software used in structural applications. They will use 3D sketch software to model structural components and combine components to create a building model. Students will identify fundamentals of building modeling and will use Building Information Modeling software (BIM). They will identify hierarchies of components, set up drawings and output, import and export information. Students will apply annotation and scheduling to drawings. They will create advanced components, prepare structural connections, apply detailing for engineering drawings, and use BIM software to complete a project.

Prerequisites: (CADD 1100 or DRAF 1100) and (CADD 1110 or DRAF 1110) and (CADD 1150 or [DRAF 1150 plus DRAF 1306]) and (CADD 1160 or CADD 1161 or DRAF 1160)

CADS 2100 CR-4
Site Work
Students will indicate contour lines, prepare site layout, and determine site grading. They will prepare site drainage, retaining walls, outline of buildings and prepare site access. Students will complete a site plan drawing.

Prerequisites: Certificate in CADD - Structural Specialty or DRAF 1360

CADS 2150 CR-4
Building Information Model (BIM) for Structural - Project
Students will explain document control procedures and apply a document change-manage process. They will follow health and safety procedures, describe the effects of office ergonomics, and follow appropriate office deportment related to design and drafting. Students will explain liability issues, follow ethical principles, and explain basic project management principles related to design and drafting. They will identify the roles of Engineering and Architectural professionals, and apply algebraic and trigonometric concepts and methods to solve problems.

Prerequisites: CADS 1250

APPENDIX Z

Media Release Waivers for Testimonials

NOTES

email from Ali Hassanlou: Requesting a favour
REPLY REPLY ALL FORWARD
CONTINUE EDITING DISCARD
Mark as unread

Joanne Massey
Sun 10/25/2015 2:39 PM
To:
Daryl Massey;
...

From: Ali Hassanlou
Sent: Monday, January 27, 2014 6:32 PM
To: Joanne Massey
Subject: RE: Requesting a favour

Hello Joanne,
Here is the testimony, it is a little longer that you asked and it is possible to shorten it. Let me know please if you want to make any changes to meet your promotional needs:

I had always had an interest in learning Computer Aided Design but couldn't find time in my busy schedule. I was fortunate in Spring of 2013 that I finally found some time to learn what I always wanted to learn. I looked at all institutions in BC that offer CADD and found the CADD program in KPU. I am so happy that I took the program because pedagogically, it is a very sound program as it includes all the steps of sequential mental development. The program goals are set high and these goals are communicated with students in the first day of classes. The hand-on feature of the program helps students understand the concepts and apply them to solve problems and get the job done. The program teaches students that there are many different ways to solve a problem. As a person with engineering and business background, this was my favorite part of the program. I think, or better to say "trained to think" that we never limit ourselves to one solution. We try to find as many alternate solutions as possible to one problem and pick one solution that is less risky and takes minimum time/cost. The program faculty are very friendly and knowledgeable in their fields and deliver the program efficiently. They immensely care about the success of their students. I strongly recommend this program for all who want to learn a tool to land a job and do well in life.

Best
Ali

KWANTLEN POLYTECHNIC UNIVERSITY

PHOTO(S) RELEASE AND TESTIMONIAL FORM

(ADULTS - 19 years and Older)

MUST BE COMPLETED

Date: JANUARY 23, 2014 **Location:** Surrey, BC

Project: Promotional Photos **Department:** CADD

Authorization to Use and Reproduce Testimonial and Photographic Imagery

By signing this document, I consent to the use of my testimonial and my physical likeness in photographic, video or electronic reproduction form in any materials, and on websites, produced by the Marketing and Communications Department or other departments of Kwantlen Polytechnic University. I release Kwantlen Polytechnic University, its agents, staff and the photographer from liability for any violation of any personal or proprietary right in connection with such use. I waive all rights to royalties or other compensation arising from, or related to, the use of the photograph and/or testimonial.

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Please send all SIGNED waiver forms to the Marketing and Communications Department, Surrey Campus, by fax at 604-599-2064 or intercampus mail

I am 19 years of age or older, and I acknowledge that I have read, understood, and accept the terms of this release.

Name (**Print**):	Tel #:	Program:	Signature:
1. ALVIN KAITA	604-644-1643	CADD1150	
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			

Please note: Complete testimonials, as required, on accompanying page.

KWANTLEN POLYTECHNIC UNIVERSITY

PHOTO(S) RELEASE AND TESTIMONIAL FORM
(ADULTS - 19 years and Older)

MUST BE COMPLETED

Date: 08/01/2013 Location: AUTOPRO AUTOMATION

Project: GRAD POSTER. Department: CADD TECH

Authorization to Use and Reproduce Testimonial and Photographic Imagery

By signing this document, I consent to the use of my testimonial and my physical likeness in photographic, video or electronic reproduction form in any materials, and on websites, produced by the Marketing and Communications Department or other departments of Kwantlen Polytechnic University. I release Kwantlen Polytechnic University, its agents, staff and the photographer from liability for any violation of any personal or proprietary right in connection with such use. I waive all rights to royalties or other compensation arising from, or related to, the use of the photograph and/or testimonial.

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Please send all SIGNED waiver forms to the Marketing and Communications Department, Surrey Campus, by fax at 604-599-2064 or intercampus mail

I am 19 years of age or older, and I acknowledge that I have read, understood, and accept the terms of this release.

Name (**Print**):	Tel #:	Program:	Signature:
1. DALE MAR	(604) 802-2711	CADD TECH.	
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Please note: Complete testimonials, as required, on accompanying page.

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KWANTLEN POLYTECHNIC UNIVERSITY

Testimonials (#'s correspond with #'s on front page):

1. PHOTOS TO BE USED FOR GRAD POSTERS / CALENDAR.
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Office Use:
Please code each person so our department is able to determine which name / testimonial belongs to which picture i.e. put picture # on roll beside each person's name.

Please send all SIGNED waiver forms to the Marketing and Communications Department, Surrey Campus, by fax at 604-599-2064 or intercampus mail

KWANTLEN POLYTECHNIC UNIVERSITY

PHOTO(S) RELEASE AND TESTIMONIAL FORM
(ADULTS - 19 years and Older)

MUST BE COMPLETED

Date: APRIL 30 2013 Location: Vancouver BC

Project: CADD GRAD POSTER Department: CADD

Authorization to Use and Reproduce Testimonial and Photographic Imagery

By signing this document, I consent to the use of my testimonial and my physical likeness in photographic, video or electronic reproduction form in any materials, and on websites, produced by the Marketing and Communications Department or other departments of Kwantlen Polytechnic University. I release Kwantlen Polytechnic University, its agents, staff and the photographer from liability for any violation of any personal or proprietary right in connection with such use. I waive all rights to royalties or other compensation arising from, or related to, the use of the photograph and/or testimonial.

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I am 19 years of age or older, and I acknowledge that I have read, understood, and accept the terms of this release.

	Name (Print):	Tel #:	Program:	Signature:
1.	GEORGIE VARKKI	6047211002	CADD	
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Please note: Complete testimonials, as required, on accompanying page.

KWANTLEN POLYTECHNIC UNIVERSITY

PHOTO(S) RELEASE AND TESTIMONIAL FORM

(ADULTS - 19 years and Older)

MUST BE COMPLETED

Date: 7/31/2013 Location: CLOVERDALE

Project: CADD POSTER Department: CADD

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I am 19 years of age or older, and I acknowledge that I have read, understood, and accept the terms of this release.

Name (**Print**):	Tel #:	Program:	Signature:
1. KYLE VANDERVEEN	604-2518447	CADD	
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Please note: Complete testimonials, as required, on accompanying page.

KWANTLEN POLYTECHNIC UNIVERSITY

PHOTO(S) RELEASE AND TESTIMONIAL FORM

(ADULTS - 19 years and Older)

MUST BE COMPLETED

Date: APRIL 21 2013 Location: SURREY BC

Project: CADD GRAD POSTER Department: CADD

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I am 19 years of age or older, and I acknowledge that I have read, understood, and accept the terms of this release.

	Name (Print):	Tel #:	Program:	Signature:
1.	Sherresse Walker	6048664052	CAD	
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Please note: Complete testimonials, as required, on accompanying page.

APPENDIX AA

CADD Program Advisory Committee (PAC) Directory

NOTES

PAC Contact List

Formal Title	First Name	Last Name	Bus. Phone	Cel. Phone	Email	Occupation	Company Name	Company Address
Architectural PAC								
Mr.	Dimitry	Harvalias	604-240-7311		dimitir@summitaec.com		Harvalias Consulting Services Ltd.	2940 Delahaye Drive, Coquitlam, BC, V3B 7E8
Mr.	Farshid	Rafiei-Anaraki	604-235-4444		info@unisonarchitecture.ca	Architect	Unison Architecture	
Mr.	George	Cawdry	604-587-4783		george.cawdry@fraserhealth.ca	Architectural Design	Breakwater Design Group	Unit 322, 9440 - 202nd Street., Langley, BC, V1M 4A6
Mr.	Richard	Dyck	604-868-9264		rick@silvertipconsulting.ca		Silvertip Consulting	
Industrial PAC								
Mr.	Wes	Elias	604-587-8439	604-649-6752	wes.elias@stantec.com	Sr.Office Admin	Stantec	13401 108th Ave. 10th Floor, Surrey, BC, V3T-5T3
Mr.	Rick	Hoegler	604-602-1175	778-231-3860	rhoegler@allnorth.com	Div. Op. Manager	Allnorth	1200 - 1100 Melville St. Vancouver, BC, V6E-4A6
Civil PAC								
Ms.	Kelly	Wightman	604-424-4908		kwightman@mcelhanney.com	Sr.Civil/Struc. Tech.	McElhanney Engineering Services Ltd.	Suite 2300 Central City Tower, 13450 102 Ave. Surrey, BC, V3T-5X3
Ms.	Linda	Rutland-Petch	604-536-1632		Soleproj@telus.net			
Structural PAC								
Mr.	Jim	Simpson	604-270-7728		jsimpson@fransenengineering.com		Fransen Engineering	Suite 210 - 3031 Viking Way, Richmond, BC, V3V-1W1
Mr.	Steve	Leesing	780-917-7000		sleesing@stantec.com		Stantec Engineering	17120 102A AVE. , Surrey, BC,
Electrical PAC								
Mr.	Chris	Chadwick	605-587-8453	778-837-5267	chris.chadwick@stantec.com		Stantec	13401 108th Ave. 10th Floor, Surrey, BC, V3T-5T3
Mr.	Rick	Tucker	604-946-7680		Rtucker@smlconsultants.ca	VP Design	SML Consultants Group Ltd.	Unit 109 - 7225 Brown St., Delta, BC, V4G-1G5
Ms.	Nicole	Hlus	604-419-5216		nicole.hlus@autopro.ca	CAD Coordinator	Autopro Automation Consultants	Suite 600- Dominion St. Burnaby,BC, V5G-4L7
Ms.	Gina	Sheppard	604-730-1422		gsheppard@eqcanada.com	CAD Specialist	Equilibrium Consulting Inc.	202 - 388 West 8th Ave., Vancouver, BC, V5Y 3X2
Manufacturing PAC								
Mr.	Greg	Creamore	604-357-3451		greg@crystaltech.ca	Mech. Designer	Crystal Technical Services Inc.	843 Whitchurch St, N.Vancouver, BC, V7L 2A5
Mr.	Paul	Ritter	604-952-2311		po_ritter@telus.net			
Ms.	Carmen	Feldman	604-273-1068		carmenfeldman@shaw.ca	Mech. Engineer	White Water West	
Mr.	Lee	Ryan						
Steel Detailing PAC								
Mr.	Brian	Pyper	604-606-5801		bpyper@dowco.com	VP	Dowco Consultants Ltd.	2433 Holdom Ave., Burnaby, BC, V5B-5A1
Institutional PAC								
Mr.	Martin	Lim			lim_m@surreyschools.ca	Tech Ed. Instructor	Surrey School District	

External Review Report for CADD Technologies Program

Kwantlen Polytechnic University

February 2016

External Review Team:

Blaine Ross – General Manager, Novus Technical Services Inc. (External Review Chair)

Andhra Goundrey – Faculty and Coordinator, Fashion and Technology, Kwantlen Polytechnic University

Mindy Marshall – Chair, Architectural & Engineering Technology; Thompson Rivers University, Kamloops, BC

CADD Technologies - External Review Site Visit

DATE: Feb 4, 2016

LOCATION: Kwantlen Polytechnic University (KPU), Cloverdale Campus

Site Visit Agenda:

- Interview with Christina Heinrick, CADD Instructor. Todd Bolenback, Program Assistant in attendance
- Interview with Jessica Clow, 2nd year student also from CTC program
- Interview with Brian Haugen, Dean, Trades and Technology
- Meeting with faculty – Todd Bolenback, Steve Kennedy, Mike Whitmore, Rick Dyck & Christina Heinrick
- Tour of the computer lecture rooms and labs
- Observe and speak with students in the Core semester
- Observe and speak with students in the Structural Specialty semester
- Meet with Program Advisory Committee (PAC) members Rick Tucker & Nicole Hlus
- Skype meeting with Daryl Massey, Chair, CADD Technologies program

Executive Summary:

General Overview:

- General review of the CADD Technologies Program
- The Review focused on:
  a. quality of course material and course tools (hardware & software)
  b. course relevance to current market requirements for graduating students
  c. entrance requirements
  d. recent restructuring of courses from a 1-year “Trade” program to the current 2-year “Undergraduate” program
  e. potential relocation of instruction classrooms to alternate KPU campuses: Richmond or Surrey’s 3 Civic Plaza
  f. review of potential integration into a “Co-Op” program

The External Review Team took turns posing questions arising from the Program’s Self-Study document to each focus group or person during the site visit.

General Observations:

- More support from IT is necessary;
- Program accreditation will be necessary in the future;
- Students appreciate the hands-on and personal attention of the instructors;
- Instructors feel the pressure to fill each seat each semester;
- Admissions issues must be addressed by the institution to assist in retention of applicants;
- Faculty are commended for their efforts assisting students with registration and job placement after graduation.

External Review Team - Notes, Observations & Recommendations

History and Scope of the Program

1. **Investigate the opportunity of Co-op option**
   - Although the original proposal was denied, the Dean has encouraged the program to resubmit the proposal and offers his support.
   - The Dean's Office endorsement would be essential to support the funding and administrative structure required.
   - Making Co-op a requirement for graduation can have potential problems as placement will depend on the construction industry and is subject to the ups and downs of the economy. However, assisting with work placement is viable. The program could have a project course students take instead of a co-op job if necessary.

Recommendations:

a. The External Review Committee notes that the PAC fully supports the idea of Co-op and the investigation of possible funding opportunities for partial salary splits to be shared with potential employers.
b. The External Review Committee supports a co-op option for the CADD program.
c. The External Review Committee recommends that Co-op be optional as it will be directly influenced by industry and has no control over the availability of co-op terms for students.
d. Note: the PAC suggests having a list of students who have completed the Core semester and are not at school full time as well as their speciality; this list of students could be available to work 1-3 days a week for work experience.

2. **Investigate expansion opportunities at KPU Richmond Campus and/or Surrey 3 Civic Plaza**
   - Moving the program to a location that is more accessible to working professionals would enable the program to fill revenue generating evening/upgrading classes offered by the program.
   - The Cloverdale Campus location can be a barrier as it is not as easily accessible by transit. Both the Richmond and 3 Civic Plaza campuses are accessible via the Canada Line and Sky Train, respectively.

Recommendations:

a. The External Review Committee recommends more IT support for the CADD program and recommends that as the program expands to offer more courses, night classes or cloud-based software, that more IT time be made available.

3. **Investigate the viability of professional courses and continuing education**
   - Faculty have noted that there are 5-7 courses prepared, but there is a need for adequate support for administration and promotion. Dean's Office support is encouraged to work with the Continuing and Professional Studies team.

Recommendations:

a. The PAC fully supports the addition of these courses, noting that time offerings would need to be strategic.
b. The PAC suggested consultation with the committee for course content suggestions.
c. The External Review Committee recommends that the complement of courses be increased if/when student enrollment can support them and to consult the PAC for input on location and times.

4. Review of course entry requirements as it is currently being offered to Aboriginal students

- Current incentives to Aboriginal students through the KPU "Eagle" program.
- Little interest from local Aboriginal communities.

Recommendations:

a. The External Review Committee recommends that the program investigates further partnerships for Aboriginal students.

5. Investigate opportunities for foreign student enrolment

- International students' tuition fees are higher than local students.
- Minimum course entry requirements tend to be an issue. English language proficiency is a primary issue.
- English requirements are key to student success and international students may require more support than is currently available at this campus.

Recommendations:

a. The External Review Committee recommends the CADD program continue to review available funding for foreign students and maintain minimum course entry requirements.

6. Quality of Course Educational Design

- Formalize application pathways for students not meeting entrance requirements.
- Review software support. The current plan is to upgrade AutoCAD to the latest version each time there is a new release. KPU IT staff suggest that a great deal of time and effort is involved with this constant upgrading. General industry standards are to customize a recent version of AutoCAD and maintain its functionality through a number of releases/upgrades.

Recommendations

a. The External Review Committee recommends that the CADD program have defined pathways for students not meeting entrance requirements. This is attractive to students who need to upgrade, and can also apply to potential mature or immigrant students.
b. The External Review Committee recommends that the CADD program review software upgrades with a possible industry alignment and a focus on the customization of previous versions.
c. The External Review Committee recommends increased integration of 3D printers and routers in the program.
d. The External Review Committee recommends that the faculty involve the PAC in creating partnerships to use other resources such as a wiring lab/PLC within the CADD program.
e. The External Review Committee recommends that the CADD program increase experiential learning by refining and adapting course material - as it relates to industry - following consultation with industry partners.
f. The External Review Committee recommends increased flexibility in the composition of credentials.
g. The External Review Committee recommends Increasing content related to writing skills and the interpretation and application of standards and codes
h. The External Review Committee notes that KPU should recognize the time and energy the CADD instructors spend staying current in a constantly evolving discipline.

7. Quality of Educational Experience

- Review of program's continuing education with a view towards adding depth in area specialties.
- Review of student graduation practices, convocation attendance and program functions.
- Review of program focus on field trips to local industry facilities specific to course topics.

Recommendations

a. The External Review Committee recommends increasing the program's skill set by hiring Subject Matter Experts (SME's).
   i. The program currently has sufficient faculty for the discipline specific areas that they currently teach. To expand professional development courses or night school classes, the program may be required to hire subject matter specialists. This will require support from the Dean's office.

b. The External Review Committee recommends encouraging students to apply for their credentials and attend convocation.
   i. The faculty of the CADD program should continue to encourage student to apply for their credentials and to host an evening or day event to celebrate the cohort. While students are waiting for their diploma to attend convocation, they might be convinced to participate with their peers in something less formal.

c. The External Review Committee recommends faculty or a faculty representative attend convocation.
   i. Faculty should be encouraged to attend convocation; while the event is for students, they do appreciate all the attention and guidance from their instructors and attendance at the event would complete their experience.

d. The External Review Committee recommends increasing field trips and including guest speakers from industry to speak with students.
   i. Guest speakers could be encouraged to speak with students over a lunch break to allow for classroom work to continue without losing too much course time. PAC seems very open to giving back by talking with students. The External Review Committee suggests that faculty approach the PAC and draw up a list of times (e.g. once per month) and have them sign up based on the discipline being offered at any given time.
   ii. Field trips, while they do take time away from the course material, can have a valuable impact on students and are encouraged. The PAC may be able to help with locations.
   iii. Some field trip locations may include additional requirements for safety gear such as steel toed boots and hard hats, so this may be a deterrent. Alternately, the use of videos to show relevant locations and equipment may assist in making further learning connections.
   iv. The CTC program now only has partnerships with Surrey and Burnaby. Partnerships should be encouraged with all local school districts within reasonable distance.

8. Student Satisfaction with Services, Resources and Facilities

- General review of available student resources, including onsite counselling, on and off-site software and resource support and availability.

Recommendations

a. The External Review Committee recommends continued encouragement of students to utilize counselling, the Learning Center and the Library
   i. While most students did not require the services offered, there is very little offered in the way of counselling on a day-to-day basis at this campus.

ii. The current students did not seem concerned about any of these resources at the time, but if they did need them, they may find them to be inadequate.
iii. The External Review Team did not receive a full campus tour and are therefore unable to comment on the library, learning center or counselling services adequately.
iv. KPU members from these areas could come to do a presentation on the services offered.

b. The External Review Committee recommends investigating an increase for either the Program Assistant (currently at 17.5 hours/week or IT Support for any needs that require server expansion) and/or considerations for multi-campus offerings.
   i. Faculty and staff noted that the current peer tutor for AutoCAD has been successful, so the program is encouraged to seek the support necessary to continue with this initiative.
   ii. Current students also noted that they have adequate access to labs to complete projects (especially for software that is only available in on-campus labs), so the program is encouraged to maintain scheduling to ensure this access.

9. Faculty Satisfaction with Services, Resources and Facilities

- The External Review Committee held a lunchtime discussion with program instructors.
- Topics discussed focussed on the availability of support, requirements to maintain enrollment, functionality of the KPU website and a variety of additional items.

Recommendations

a. The External Review Committee recommends that all faculty receive instruction on registration, registration dates and times to be able to assist CADD students.
   i. As the policy for registration dates and times has recently changed, further clarity and communication from the Registrar would be beneficial to ensure that students are fully aware of their standing in the program.
   ii. Further discussion with the CADD Program Coordinator may also be required to investigate other options such as reserved seating to encourage retention and efficient progression through the program.

b. The External Review Committee recommends increasing involvement by the CADD department for new program applicants.
   i. Problems arising from the Admissions Office should be addressed by the Dean. It creates stress on the faculty when they are working hard to recruit and retain students to have them not be able to register easily for a program.
   ii. The Dean's office should support faculty with initiatives in the Registrar's office to simplify the admission process to KPU and the CADD program.
   iii. A few current students noted some challenges receiving Admissions' correspondence because they did not realize that they needed to access their Kwantlen email account.

c. The External Review Committee recommends the CADD program continue to develop and follow a strategic plan.

d. The External Review Committee recommends strengthening relationships with the Dean's office and other Trades' programs faculty.
   i. Due to the turnover in the Dean's office over the last two years, the faculty are unclear whether the Dean supports them or not. Faculty are encouraged to invite the Dean to department meetings, student presentations or to visit the CADD labs/classrooms to get a better sense of what the program is about.

e. The External Review Committee recommends the CADD program continue to work with other Trades faculty with respect to projects and demonstrations such as welding, fabrication and framing that would support learning for CADD students.
f. The External Review Committee notes that CADD faculty have taken on projects beyond the scope of their work to assist students with registration, provide alumni events to maintain industry contacts and to continue to improve the program off the sides of their desks. Providing an increased budget or increasing chair release time would remove some stress on faculty and improve their capacity to continue to provide these resources to students and graduates.

10. Quality of Program Relationships and Connections

- The current program's relevance and connection to industry accreditation and post-secondary facilities was reviewed discussed.

Recommendations

a. The External Review Committee recommends accreditation with ASTTBC.
    i. The CADD program is encouraged to pursue accreditation with ASTTBC for further laddering of students to other programs as well as for graduate student development. The PAC indicates that they support graduates being certified and salaries will increase for students who acquire certification. Certification will increase the reputation of the CADD program on a national level. (Note: ASTTBC will no longer support programs accredited with CTAB; they want Technology Accreditation Canada (TAC) accreditation http://www.technologyaccreditation.ca/
b. The External Review Committee recommends the additional resources of time and funding required to continue with event planning for Alumni events.
c. The External Review Committee recommends that Faculty and Alumni be encouraged to investigate the possibility of establishing an Alumni Chapter. This will also provide an avenue to apply for further funding for other events and initiatives.
    i. KPU is encouraged to track alumni tracked for future purposes such as professional development courses.
d. The External Review Committee recommends that the CADD program invite the Dean's office to participate in PAC and Alumni initiatives.
e. The External Review Committee recommends exploring the creation of a CADD User Society.
f. The External Review Committee recommends developing degree pathways for Diploma graduates.
    i. The industry is moving towards a credentialed model. By providing pathways for future learning, students are encouraged in life-long learning.
    ii. Increase input from the PAC; increase membership with representatives who are not graduates from the CADD program, but who are in a position to hire CADD graduates. Graduates are happy to give back to the program, but may not provide the industry guidance necessary to move in new directions. During the site visit, we did not meet anyone who had not taken the CADD program; it would have been beneficial to get an "outsider's" opinion.

Program Review Action Plan

Action Plan for: CADD Technologies **Date submitted to SSCPR: June 2016**

Date Self-Study Report approved by SSCPR: September 2015 **Date of External Review: February 2016**

GOALS:

1. Investigate the opportunity of Co-op options
2. Investigate expansion opportunities at KPU Richmond and KPU 3 Civic Plaza
3. Investigate the viability of professional courses and continuing education
4. Investigate opportunities for foreign students
5. Investigate opportunities for aboriginal students
6. Formalize pathways for students not meeting entrance requirements
7. Increase integration of 3D printer and router
8. Increase experiential learning
9. Increase flexibility in the composition of credentials
10. Increase content related to writing skills and the interpretation and application of standards and codes
11. Increase program Instructor skill set by hiring Subject Matter Experts (SME's)
12. Encourage students to apply for credentials and attend convocation
13. Encourage faculty to attend convocation
14. Increase field trips and guest speakers from industry

15. Encourage students to utilize counselling, Learning Center and Library
16. Increase Faculty understanding of Admission processes and pursue increased integration and involvement with these processes
17. Continue to develop and follow a strategic plan
18. Strengthen relationships with Dean's office and other Trades faculty
19. Pursue accreditation with ASTTBC
20. Develop stronger alumni association
21. Increase Dean's office participation with PAC initiatives
22. Investigate the creation of a CADD User Society
23. Develop degree pathways for Diploma graduates

Recommendations	**Report (page number)**	**Addressed in Goal #**
Investigate the opportunity of Co-op option a. The External Review Committee supports a co-op option for the CADD program. b. The External Review Committee recommends that Co-op be optional as it will be directly influenced by industry and has no control over the availability of co-op terms for students.	**Page 3**	**1**
Investigate expansion opportunities at KPU Richmond Campus and/or Surrey 3 Civic Plaza a. The External Review Committee recommends more IT support for the CADD program and recommends that as the program expands to offer more courses, night classes or cloud-based software, that more IT time be made available.	**Page 3**	**2, 3, 20, 22**
Investigate the viability of professional courses and continuing education a. The PAC fully supports the addition of these courses, noting that time offerings would need to be strategic. b. The PAC suggested consultation with the committee for course content suggestions.	**Page 3**	**3**

c. The External Review Committee recommends that the complement of courses be increased if/when student enrollment can support them and to consult the PAC for input on location and times.		
Review of course entry requirements as it is currently being offered to Aboriginal students a. The External Review Committee recommends that the program investigates further partnerships for Aboriginal students.	**Page 4**	**5**
Investigate opportunities for foreign student enrolment a. The External Review Committee recommends the CADD program continue to review available funding for foreign students and maintain minimum course entry requirements.	**Page 4**	**4, 6, 23**
Quality of Course Educational Design a. The External Review Committee recommends that the CADD program have defined pathways for students not meeting entrance requirements. This is attractive to students who need to upgrade, and can also apply to potential mature or immigrant students. b. The External Review Committee recommends that the CADD program review software upgrades with a possible industry alignment and a focus on the customization of previous versions. c. The External Review Committee recommends increased integration of 3D printers and routers in the program. d. The External Review Committee recommends that the faculty involve the PAC in creating partnerships to use other resources such as a wiring lab/PLC within the CADD program. e. The External Review Committee recommends that the CADD program increase experiential learning by refining and adapting course material - as it relates to industry - following consultation with industry partners. f. The External Review Committee recommends increased flexibility in the composition of credentials. g. The External Review Committee recommends Increasing content related to writing skills and the interpretation and application of standards and codes h. The External Review Committee notes that KPU should recognize the time and energy the CADD instructors spend staying current in a constantly evolving discipline.	**Page 4**	**3, 6, 7, 8, 9, 10, 11, 18, 21**

Quality of Educational Experience a. The External Review Committee recommends increasing the program's skill set by hiring Subject Matter Experts (SME's). b. The External Review Committee recommends encouraging students to apply for their credentials and attend convocation. c. The External Review Committee recommends faculty or a faculty representative attend convocation. d. The External Review Committee recommends increasing field trips and including guest speakers from industry to speak with students.	**Page 5**	**11, 12, 13, 14**
Student Satisfaction with Services, Resources and Facilities **a.** The External Review Committee recommends continued encouragement of students to utilize counselling, the Learning Center and the Library b. The External Review Committee recommends investigating an increase for either the Program Assistant (currently at 17.5 hours/week or IT Support for any needs that require server expansion) and/or considerations for multi-campus offerings.	**Page 5**	**15**
Faculty Satisfaction with Services, Resources and Facilities a. The External Review Committee recommends that all faculty receive instruction on registration, registration dates and times to be able to assist CADD students. b. The External Review Committee recommends increasing involvement by the CADD department for new program applicants. c. The External Review Committee recommends the CADD program continue to develop and follow a strategic plan. d. The External Review Committee recommends strengthening relationships with the Dean's office and other Trades' programs faculty. e. The External Review Committee recommends the CADD program continue to work with other Trades faculty with respect to projects and demonstrations such as welding, fabrication and framing that would support learning for CADD students. f. The External Review Committee notes that CADD faculty have taken on projects beyond the scope of their work to assist students with registration, provide alumni events to maintain industry contacts and to continue to improve the program off the sides of their desks. Providing an increased budget or increasing chair release	**Page 6**	**8, 16, 17, 18**

time would remove some stress on faculty and improve their capacity to continue to provide these resources to students and graduates.		
Quality of Program Relationships and Connections a. The External Review Committee recommends accreditation with ASTTBC b. The External Review Committee recommends the additional resources of time and funding required to continue with event planning for Alumni events. c. The External Review Committee recommends that Faculty and Alumni be encouraged to investigate the possibility of establishing an Alumni Chapter. This will also provide an avenue to apply for further funding for other events and initiatives. d. The External Review Committee recommends that the CADD program invite the Dean's office to participate in PAC and Alumni initiatives. e. The External Review Committee recommends exploring the creation of a CADD User Society. f. The External Review Committee recommends developing degree pathways for Diploma graduates.	**Page 7**	**19, 20, 21, 22, 23**

SHORT-TERM AND LONG-TERM PLANNED ACTIONS.

GOAL #1 Investigate the opportunity of Co-op options:

Short-Term Planned Action(s)	Led by	Begin on	Anticipated Completion Date	Notes
We will re-apply to the Co-op Program and attempt to address the issues encountered in the past when our request was rejected.	CADD Program Chair	Co-op application target:	January 2017	In 2011 we made application to the Co-op Program which was denied. It was explained at that time that this decision was based primarily on the funding requirement and not on the merit or proven

		November 2017		demand for a Co-op. One of the major concerns was that through Co-op a student is required to pay for an additional 1.5 credits for the administrative requirements of the Co-op Program.
We will develop a Work-placement program.	CADD Program Chair, PAC Chair,	Discussions with PAC have already begun regarding Work-placement	January 2017	We anticipate that current Diploma students will interact with our PAC (and others as we can expand this opportunity) to be available for part-time and/or intermittent employment opportunities while they attend classes and in semesters where they are not attending classes. Our current scheduling of Diploma level classes is in the evenings to make possible daytime employment opportunities. It is reasonable to expect that this type of non-funded program could be put into practice by January 2017.

Long-Term Planned Action(s)	**Led by**	**Begin on**		**Anticipated Completion Date**	**Notes**
With any degree of good fortune, we envision that the Work-placement program should be successful and will require only minimal administrative effort from the CADD department. We anticipate that it will become a relationship between the PAC (and others) and our current students where the CADD department will act largely as an intermediary to: 1. Communicate this opportunity to students 2. Provide oversight to ensure that the intent of the program is being maintained 3. Ensure that our students' well-being and benefit is being maintained 4. Ensure that the benefit to Industry is maintained through applicant screening, consultation, etc.	CADD Program Chair, PAC Chair, KPU Co-op Administration	September 2017		January 2017	The Co-op application information has been prepared and organized in the effort from 2011 with current data required to update its content. If funding is able to be secured we will follow the guidelines involved to support this program and manage the student – Industry relationship to ensure its success. If the Co-op is approved we will re-visit the Work-placement program to determine, together with the PAC, if it should be discontinued.

GOAL #2 Investigate expansion opportunities at KPU Richmond and KPU 3 Civic Plaza:

Short-Term Planned Action	Led by	Begin on	Anticipated Completion Date	Notes
Promote the move of all or part of the CADD Technologies Program into 3 Civic Plaza at every opportunity.	CADD Program Chair, CADD Faculty, Dean – Trades and Technology	January 2015	September 2017	We feel strongly about offering our program on a multi-campus basis and feel that our survey data and research support this position. Prior to 2008 we delivered courses in Newton, Richmond and Langley. We have been involved in the Search process for 3 Civic Plaza and the Richmond campus and have been informed that our program is considered a good candidate. We plan to continue to follow-up as necessary on these opportunities. In addition, we have conducted some internal research into computer lab space availability and found that our computer processing requirements and scheduling needs present problems when we attempt to schedule into the limited computer lab space available at other campuses. However, we have been able to determine that we can schedule access to KPU laptops to enable "portable classroom" potential. The limits to this model are apparent when we look at equipment and support requirements for courses beyond the 1st Semester. We have discovered that the Interior Design program student laptop leases expire August 1, 2016. Purchasing these units for the CADD Department (at a great discount) would provide us with greater control and flexibility and intend to pursue this with our Dean. Together with IT we have determined that these laptops can manage our software needs and can be made available to accommodate our scheduling needs. We anticipate that this will enable us to plan, prepare and deliver

				future course options according to our multi-campus vision.

Long-Term Planned Action	Led by	Begin on	Anticipated Completion Date	Notes
We hope that our efforts will see the CADD program newly located at 3 Civic Plaza and offering additional courses via a Portable Classroom format to all KPU campuses. We already have strong connections and survey data that indicate needs in Science and Engineering, the School of Design and Trades and Technology. Our software is now "Cloud Based" and very IT friendly to this format.	CADD Program Chair, CADD Faculty,	September 2017		

GOAL #3 Investigate the viability of professional courses and continuing education:

Short-Term Planned Action	Led by	Begin on	Anticipated Completion Date	Notes
Create 5 to 7 CE and CPS courses designed to operate from 3 Civic Plaza	CADD Program Chair, CADD Faculty, PAC Chair	October 2015	January 2017	Together with our PAC, we have determined that there is a need for both professional courses and continuing education course offerings (CPS and CE). The CADD department has offered this type of course previously, marketed it extensively, and found that our current location in Cloverdale is a strong deterrent to success. As noted in Goal #2 above, the ability to operate a portable classroom will make this initiative viable. Lead by our PAC, we have already developed a course format (course duration, cost,) and identified 5 to 7 current topics to be developed into course materials. We anticipate having some courses prepared and available by January 2017 and being able to provide them at a more appropriate location.

Long-Term Planned Action(s)	Led by	Begin on	Anticipated Completion Date	Notes
Our Long-Term Plan in this regard has two scenarios: 1. Our program is moved to 3 Civic Plaza and we provide both Based Funded and non-Base Funded courses at this location. This location will be ideal for offering CE and CPS courses in CADD Technologies. 2. Our program remains in Cloverdale (or moves to Richmond) and we use our Portable Classroom to provide CE and CPS courses in addition to offering them at 3 Civic Plaza.	CADD Program Chair, PAC Chair	October 2017		Under either scenario, we will continue to work with our PAC to identify current Industry training needs and work towards providing an expanded course offering through this method.

GOAL #4 Investigate opportunities for foreign students:

Short-Term Planned Action(s)	Led by	Begin on	Anticipated Completion Date	Notes
We will remain in contact with the International Students Office to ensure that they have current program information to provide to student inquiries and work with them in relation to Goal #6.	CADD Faculty, Dean's Office Trades and Technology	Ongoing		We have seen a steady increase in the number of International students who attend our program. As indicated on page 19 of our Self-Study "*There has been an increase of International students accepted into the CADD program since the start of the new undergraduate program. Acceptances have gone from one in 2009 to ten in 2015.*" We have had discussion with our Dean regarding expanded International Student opportunities which include the potential to provide a full section of fully funded courses. We will continue to support this type of initiative though we do not have direct access to these negotiations.

Long-Term Planned Action(s)	Led by	Begin on	Anticipated Completion Date	Notes

We anticipate that KPU will have an increased interest in attracting International students. We will support these initiatives in any way that we can and feel that CADD is well placed as an attractive program for these students. We expect an increased number of International student applicants over time.	CADD faculty, Dean's Office Trades and Technology, International Students Office	Ongoing		

GOAL #5 Investigate opportunities for aboriginal students:

Short-Term Planned Action(s)	Led by	Begin on	Anticipated Completion Date	Notes
Develop a Math/CADD Discovery Program with a non-profit partner.	CADD Faculty Members	October 2015	June 2016	We are currently working with a non-profit organization called "Eagles of Tomorrow" with the intent of developing a Discovery program in Math and CADD. Through this program we intend to provide Aboriginal Students an opportunity to improve their options for studies in science and technologies. We see this as an opportunity to present Drafting and Design as potential career opportunities in addition to providing a good social service to the community. The course is being funded entirely by the Eagles of Tomorrow. Final preparations are underway as of April 2016 with a first class planned for July 2016 at the Native Education College (NEC) and in August at KPU. We have a table at the Info Fair at the KPU Aboriginal Open House on April 27/16. The Portable Classroom referred to in Goal # 2 will allow this program to be delivered effectively. One of our faculty members is taking a course at UFV called Indigenizing Curriculum to assist our program in content delivery with sensitivity to Aboriginal cultures.

Long-Term Planned Action(s)	Led by	Begin on	Anticipated Completion Date	Notes
Building on the success of this first initiative, expand this opportunity to create access to a larger Aboriginal Community	CADD Faculty Members	October 2016	September 2017	After we have run the above noted course(s) we will examine if this format can be extended to other Aboriginal Communities or offered to other Aboriginal Education facilities. Since we have already developed many web-based tools in the CADD program we will examine if this course can be provided to remote communities and smaller communities province wide. In addition, this experience will help us to see if other parts of our current curriculum could be modified into a remote-learning format to serve the Aboriginal Community at large.

GOAL #6 Formalize pathways for students not meeting entrance requirements:

Short-Term Planned Action(s)	Led by	Begin on	Anticipated Completion Date	Notes
Create a formalized pathway and information method to keep these students at KPU. See also Goal #23	CADD Program Chair, Office of the Registrar, Admissions, International Students Office	March 2016	January 2017	We are currently in discussions with the Office of the Registrar, Admissions and the International Future Students offices to develop methods to help with this goal. We are making efforts to understand how “Transitions” is to be navigated towards this end. Our first priority is in identifying those students with this need so that they can be channeled correctly into existing upgrade options or placement testing in Math and/or English in a timely fashion. International Students present a different challenge in that they are not always available (and it is not reasonable) to write placement tests. We are working towards a method where online testing may become an option. We believe that these initiatives will take a more

				formalized shape before the September 2016 intake.

Long-Term Planned Action(s)	Led by	Begin on	Anticipated Completion Date	Notes
Maintain the Pathway established above by monitoring KPU policy changes and CADD Program entry requirements.	CADD Program Chair, International Students Office	Ongoing		We hope that our efforts will lead to a standardized method for dealing with this Goal. Our program has multiple intake opportunities through the year so we are well suited to dealing with positive solutions for students with this need. We have very limited part-time seat availability each semester but there is some opportunity for students to attend regular classes while they obtain the necessary upgrading to integrate into the regular course flow. We will monitor this process over time to ensure that administrative changes are integrated into methodology. In addition, it is apparent that the different affected parties must continue to communicate and cooperate in sharing information.

GOAL #7 Increase integration of 3D printer and router:

Short-Term Planned Action(s)	Led by	Begin on	Anticipated Completion Date	Notes
Purchase additional equipment and facilitate Instructor training in these areas.	CADD Faculty	December 2015	May 2016	In March 2016 we purchased a second 3D Printer for the department to allow for further integration and access to this resource. We continue to examine/re-visit this technology as it changes and progresses towards lower priced and better performing hardware to ensure that our applied budget is fully utilized effectively. We have arranged for some training in the use of our Roland Desktop router to help faculty safely implement this tool into their instruction.

Long-Term Planned Action(s)	Led by	Begin on	Anticipated Completion Date	Notes
Increase course material integration and expertise in this technology	CADD Faculty	On-going		We can see where this technology is going to continue to grow in its significance and can foresee when we will have multiple units with various special applications. Much like computers, we may see a day when each station or group of stations will be suitably equipped with a 3D printer. We will monitor capital purchases over time to allow for technological advancements and industry applications to be continually implemented.

GOAL #8 Increase experiential learning:

Short-Term Planned Action(s)	Led by	Begin on	Anticipated Completion Date	Notes
Examine how Experiential Learning can be expanded into other areas of the CADD Program	CADD Program Chair, CADD Faculty, Dean – Trades an Technology	June 2016	September 2016	In CADM 1250 our students spend a full week in the Millwright/Welding shop working with and being trained in the use of various tools to produce a component or assembly that they have designed in the course. The evident success and acknowledgement of the students to this experience shows us the benefit of seeing this practice expand. Our first challenge will be to re-examine our current course outlines to see how this can be effectively accomplished without compromising the need to cover course content. We will be starting this process of course outline examination/updating for various other reasons as well but will including this aspect in our considerations.

Long-Term Planned Action(s)	Led by	Begin on	Anticipated Completion Date	Notes

Create other opportunities for Experiential Learning through course offering expansion in CE and CPS courses	CADD Program, Deans Office: Trades and Technology	January 2017	September 2017	It seems reasonable to assume that the success of Experiential Learning may lead to other CPS or CE course development to be able to provide this opportunity to students. We face a significant challenge in meeting course content outcomes with a 13 week course delivery schedule. Developing this type of cost-recovery course may also benefit students and KPU by providing this opportunity to a larger community of KPU and other students and in being able to provide this experience to other areas of specialty such as Architectural, Structural, Electrical, HVAC, Carpentry, etc.

GOAL #9 Increase flexibility in the composition of credentials:

Short-Term Planned Action(s)	Led by	Begin on	Anticipated Completion Date	Notes
Update all course outlines and prepare a Program Change for Senate approval to create a flexible composition of credentials.	CADD Program Chair, CADD Faculty	June 2016	April 2017	We are ready to start a process of re-examination of all course outlines and credential composition. Our intent is to see if we can draft/plan additional course outlines to focus on certain areas of specialization that are Industry and economy sensitive. These specialized areas can include fields related to material handling, resource extraction, technological advancements, software platforms, systems design etc. The second stage of this process is to prepare program changes for Senate approval that will see flexible course composition in our credentials. For example: a Certificate with a Structural Specialty will see a requirement for 4 courses at CADS 12XX level instead of 4 defined courses. We will need to examine how this affects other agreements such as MOU's, Block Transfer Agreements and Articulation. The other benefit to this process will be in assisting the development of degree pathways for students who will require

				bridging courses to accomplish this goal. A flexible credential may allow for a broader selection of electives to help accommodate this educational pathway.

Long-Term Planned Action(s)	Led by	Begin on	Anticipated Completion Date	Notes
Create additional courses in step with PAC, Industry and economic conditions to be introduced into current CADD Program offerings.	CADD Faculty	September 2017		Successful execution and approval through Senate of the above noted program change will lead to the development of the various new course outlines and the subsequent approval processes involved. Through our PAC and other sources we will monitor economic and industry patterns to adjust our course offerings appropriately. We will continue to develop new courses as dictated by current circumstances without having to apply for program changes to update credentialing.

GOAL #10 Increase content related to writing skills and the interpretation and application of standards and codes:

Short-Term Planned Action(s)	Led by	Begin on	Anticipated Completion Date	Notes
Since this area is included in our current course outlines we will introduce discussion at department meetings to reinforce this goal.	CADD Program Chair	May 2016		In September 2015 a researched blog post and technical report feature was introduced into CADD 1161.

Long-Term Planned Action(s)	Led by	Begin on	Anticipated Completion Date	Notes
Through consultation with our PAC and with steady input from our Instructors we will monitor this effort, need and subsequent student performance. Feedback will be provided to faculty regularly through department meetings.	CADD Program Chair	October 2016		

GOAL #11 Increase program skill set by hiring SME's:

Short-Term Planned Action(s)	Led by	Begin on	Anticipated Completion Date	Notes
As employment opportunities arise, we will structure our searches to place a priority on expanding faculty Subject Matter Expertise (SME)	CADD Faculty Search Committee	Ongoing		In February 2016 we obtained a 50% regularized faculty appointment, who is a SME in REVIT software in response to this Goal. With such a wide range of software products and employment specialties this Goal will be an on-going challenge. Regularized faculty positions are not consistently available and the hiring of NR1's has inherent problems such as consistent course content delivery, onerous hiring procedures and a lack of NR contribution and commitments to regular department responsibilities. Our short term plan will be to continue to encourage existing faculty to stay current in their fields of expertise and to maintain exposure to new software opportunities.

Long-Term Planned Action(s)	Led by	Begin on	Completed by	Notes
New SME hires will continue to depend on the timeframe of existing faculty retirement and/or replacement. This precludes the possibility of faculty expansion.	CADD Faculty	Ongoing		An option to explore will be to use CPS and CE courses as areas where new instructors with relevant SME can be utilized effectively on limited engagements.

GOAL #12 Encourage students to apply for credentials and attend convocation:

Short-Term Planned Action	Led by	Begin on	Anticipated Completion Date	Notes
Introduce the completion of Credential Applications as part of course materials.	CADD Faculty	April 2016		We held discussions in our February/16 and March/16 department meetings on this topic. It was determined that Instructors would coordinate each

				semester to ensure that classes/cohorts completing a credential would complete the appropriate applications in one of the classes currently being attended. This will help to overcome the main obstacle, which is, having students voluntarily apply upon course completion in a program with multiple exit points and credential opportunities.

Long-Term Planned Action	Led by	Begin on	Anticipated Completion Date	Notes
We will monitor the success of this initiative through its first phase of implementation and continue to bring this issue forward through department meetings. If changes are warranted over time we will continue to address as required.	CADD Faculty	Ongoing		

GOAL #13 Encourage faculty to attend convocation:

Short-Term Planned Action	Led by	Begin on	Anticipated Completion Date	Notes
Pre-schedule involvement in this and other program activities through a coordinated calendar.	CADD Faculty	March 2016	March 2016	In March 2016 we introduced a Program Activity Calendar at our department meeting. It contains the dates and descriptions of all the various activities outside of instruction that are included in the CADD calendar. Convocation is included along with many other similar activities that require faculty contribution and attendance to various levels. The calendar allows faculty to pre-schedule their involvement and allows for a fair distribution of contribution to these events. This year there are 4 confirmed faculty members attending Spring 2016 Convocation. Typical Chair functions and responsibilities and committee work are not included in the calendar.

Long-Term Planned Action	Led by	Begin on	Anticipated Date of Completion	Notes
Maintain the calendar with current dates and events, encourage and maintain faculty attendance as a Department Meeting Agenda item.	CADD Faculty	Ongoing		The Program Activity Calendar is posted on our Sharepoint site so it will remain accessible to all faculty over time. At the start of each semester we intend to update the calendar so that we can continue to forecast involvement 9 months to a year in advance. We expect that this will effectively keep attendance at Convocation and other events well attended and shared appropriately.

GOAL #14 Increase field trips and guest speakers from industry:

Short-Term Planned Action	Led by	Begin on	Anticipated Completion Date	Notes
Since this area is included in our current course outlines under Learning Activities we will introduce discussion at department meetings to reinforce this goal. Several of our Instructors have already successfully integrated this goal into their regular course delivery.	CADD Faculty	May 2016		

Long-Term Planned Action	Led by	Begin on	Anticipated Completion Date	Notes
Progress will be monitored over time and encouraged collegially.	CADD Faculty	Ongoing		Continued encouragement in this area should lead to a steady growth in it being integrated into regular course delivery methods.

GOAL #15 Encourage students to utilize counselling, Learning Center and Library:

Short-Term Planned Action(s)	Led by	Begin on	Anticipated Completion Date	Notes
Implement methods where students are informed and encouraged in the use of available on-campus student resources.	CADD Faculty	January 2015	January 2015	Each semester we have students participate in a safety orientation that includes a “walk-about’ of the campus to identify various services and features of the campus. We have produced our own video to orient students according to KPU Emergency Protocols that students are required to watch. At the end of the orientation students are required to complete an acknowledgement of participation. In

				addition, when they take their first semester, students participate in a Library orientation that provides information on Learning Centre and Library features. We use our department meetings to keep faculty informed about other initiatives such as “First Alert” to help guide and assist students displaying difficulties. Our program runs courses in the evenings when full services are not always available at the KPU Tech campus. This is a concern to us and we have brought this issue forward to the Dean’s office through the Chairs Meetings. We have always been conscious of this goal and historical efforts have included inviting Counselling for a workshop for CORE students, Library orientations, workshops, the Learning Centre and Peer tutoring.

Long-Term Planned Action(s)	Led by	Begin on	Anticipated Completion Date	Notes
We will monitor the efforts of the Dean’s office to increase student access to counselling services after regular hours. We shall continue to inform faculty on current initiatives through information and discussions at regular department meetings. We shall monitor student responses to campus services.	CADD Faculty	Ongoing		

GOAL #16 Increase Faculty understanding of admission processes and pursue increased integration and involvement with these processes:

Short-Term Planned Action(s)	Led by	Begin on	Anticipated Completion Date	Notes
Undertake meetings and information gathering efforts with Admissions and the Office of the Registrar to better understand current process under “Transitions”. Translate	CADD Program Chair	April 2014	April 2016	Since April 2014 we have held several meetings with and consulted with Admissions and the Office of the Registrar to determine how “ Transitions” can be interpreted for the benefit of our program and

this information into the CADD Program effectively to the benefit of students and faculty.				our students. We encountered a few rough moments but have now arrived at a good understanding of current KPU process. As a result of these consultations we have undertaken a significant change in how we manage program applicants. In November 2015 we prepared a Program Change proposal to see all program applicants participate in a mandatory Information Session. This change was based on the fact that our Program contains many non-intuitive features such as multiple intake opportunities that have created difficulties for our Program Applicants and for our Admissions officers. The most significant challenge proved to be an inability in the current process to waitlist, or, carry-over applicants from one intake into the next. In effect, we anticipate that this Information Session will help inform applicants of the nuances of our program and the Admissions process so that we assist and now retain students that in the past have become frustrated and lost. In anticipation of approval, we have been working with Admissions and the Office of the Registrar on a set of protocols that would make this change operational. This protocol was completed in early April 2016. Also In April 2016 the Program Change received final Senate approval, has been included into the current Calendar, and is set to become operational for the September 2016 intake. The first Information Session is scheduled for May 11, 2016. We feel we now have a well-informed understanding of the current Admissions process and a positive working relationship with the personnel and administrators in these administrative departments.

Long-Term Planned Action(s)	Led by	Begin on	Anticipated Completion Date	Notes
We shall monitor the effectiveness of this initiative and continue to work with Admissions and the Office of the Registrar to manage these affairs. We will monitor also if these departments are able to provide stable personnel in the form of Admissions Officers to our program, this has been a problem historically. We shall keep CADD Faculty informed of the processes of Admissions by involving them in the Information Sessions and through topical discussions in our department meetings.	CADD Program Chair	Ongoing		

GOAL #17 Continue to develop and follow a strategic plan:

Short-Term Planned Action	Led by	Begin on	Anticipated Completion Date	Notes
Develop a new strategic plan upon the completion of the Program Review.	CADD Program Chair	September 2016	October 2016	In 2011 our Department participated in a Strategic Planning Session. Some of the results of this session are represented on page 16 of the Self Study document in the form of the S.W.O.T. Analysis Table. This session provided us with a strategic plan that has guided us through several years of change. In September 2016 the department will examine whether the timing is now appropriate to participate in another similar planning session. With the Program Review nearing completion it seems an appropriate time to re-visit this effective guiding process.

Long-Term Planned Action	Led by	Begin on	Anticipated Completion Date	Notes
5 to 7 year seems to be an appropriate time frame to re-visit this process. Perhaps we can anticipate re-visiting this again after the next Program Review.	CADD Program Chair	September 2021		

GOAL #18 Strengthen relationships with Dean's office and other Trades faculty:

Short-Term Planned Action(s)	Led by	Begin on	Anticipated Completion Date	Notes
Continue to book regular information sharing meetings with the Dean and make invitation to the Dean's office to participate in all CADD undertakings.	CADD Faculty, Office of the Dean	Ongoing		For several years, the KPU Tech campus has been subject to change at the Dean's office level. This rate of change made the development of relationships difficult. We have seen a better state of stability since September 2015 at the Dean's level but have an underdeveloped relationship at the Assoc. Dean's level. We have made ourselves available and approachable to the Dean's office and presently enjoy a relaxed and open dialogue. We anticipate that we shall continue to work positively in this manner. CADD faculty have been encouraged to participate at the various committee levels so that relationships with the Trades faculty can be further developed. We are pleased with the current state of cooperation in the planning of our CADM 1250 course which requires the cooperation of the Deans office, the CADD Department and Millwright instructors to facilitate the Experiential Learning component of the class. The CADD program continues to provide drawings and other services to other KPU departments upon request in an effort to create and encourage greater levels of cooperation.

Long-Term Planned Action	Led by	Begin on	Anticipated Completion Date	Notes
Relationships are a two way street. We hope that stability in the Deans Office will lead to longer and stronger relationships built of mutual respect and hard work. We intend to participate in this effort with openness and vigor.	CADD Faculty, Office of the Dean	Ongoing		

GOAL #19 Pursue accreditation with ASTTBC:

Short-Term Planned Action(s)	Led by	Begin on	Anticipated Completion Date	Notes
Prepare a new matrix of comparison between current CADD course materials and the newly established ASTTBC accreditation process.	CADD Program Chair, CADD Faculty, ASTTBC	October 2013	November 2016	In October 2013 one of our Faculty undertook an analysis of current ASTTBC accreditation (see Appendix O of the Self Study submission). We used the Canadian Technologies Accreditation Board (CTAB) standards to prepare a matrix to compare our program strengths to the National Technology Benchmarks for the Technician level. Unfortunately, ASTTBC has undergone changes where CTAB is no longer the standard that they use and are undergoing conversion to using Technician Accreditation Canada (TAC). Unfortunately again, TAC did not at that time have an accreditation process in place. ASTTBC has acknowledged that they would work with us towards accreditation by sponsoring a KPU Grad through their process. We have recently been informed by a KPU CADD Diploma Grad that they have just received ASTTBC accreditation. We are in the process of obtaining information on this success and intend to pursue this current good turn of events. Our intent is that the CADD Technologies **program** will receive accreditation, therefore, an analysis of the TAC accreditation process and current ASTTBC methodology will help us to identify course curriculum changes necessary to achieve this goal.

Long-Term Planned Action(s)	Led by	Begin on	Anticipated Completion Date	Notes
Make whatever efforts are necessary to obtain ASTTBC accreditation for the CADD Program.	CADD Program Chair,	November 2016	September 2017	After a review of the TAC accreditation process and the preparation of a new matrix of comparison to assist in the analysis of our current course

	CADD Faculty, ASTTBC			materials, changes to course outlines etc. will need to be carefully considered but are consistent with our view that our program will move towards ASTTBC accreditation as a necessary endeavor.

GOAL #20 Develop stronger alumni association:

Short-Term Planned Action	Led by	Begin on	Anticipated Completion Date	Notes
Investigate the benefits of creating a CADD Alumni chapter and communicating this benefit to current students and Alumni.	All Faculty, KPU Alumni Association	September 2016	January 2017	In December 2014 we held an Alumni event with limited success. We identified our largest challenges as being an outdated contact list, the Cloverdale campus location, and the lack of significant obtainable funding. We have had department level discussion on how to correct this but, by virtue of the definition, an Alumni Association is intended to be operated by program graduates. We have determined that we need to maintain a student contact database to assist in this process and we have started to use Linkedin for this purpose. Fundamentally, we need to work towards the development of a mindset in our students towards seeing the value of Alumni participation. This topic will be included in the Strategic Planning Session spoken of in Goal #17.

Long-Term Planned Action	Led by	Begin on	Anticipated Completion Date	Notes
We see that an active CADD Alumni will be beneficial to the program and to our grads. After the development of a plan we will work towards this initiative being successful.	CADD Faculty, KPU Alumni Association	January 2017		

GOAL #21 Increase Dean's office participation with PAC initiatives:

Short-Term Planned Action(s)	Led by	Begin on	Anticipated Completion Date	Notes
We feel this Goal will work closely with Goal #18 relating to a strengthened relationship with the Dean's office. We will continue to ensure that the Dean is invited to all CADD functions and would like to encourage a greater degree of attendance. The PAC is unique and would like to see this relationship demonstrate a direct appreciation for this form of Professional and Industry level interest in our program.	CADD Program Chair	April 2015	Ongoing	According to the PAC Guidelines the Deans office and the PAC are to communicate directly through the PAC Chair with the CADD Department acting as advisors and contributors only. One of the fallouts of several years of turmoil spoken of in Goal #18 was that the PAC was left unattended by the Dean's office and meetings were not scheduled for several years. In April 2015 we took the initiative to revive the PAC and organize renewed membership and a meeting. Since then we have enjoyed Bi-annual meetings and healthy participation but have managed this through our Department Chair and the PAC Chair. The PAC Chair is assuming control of PAC activities and the Dean's office is being invited to participate at every opportunity. We have just created a "Cloud Based" PAC site to archive meeting minutes, information topics, etc. to provide PAC members and the Dean's office easy access to this information. We anticipate that this will assist in creating good communication pathways between the PAC membership, the Dean's office and the CADD Department.

Long-Term Planned Action	Led by	Begin on	Anticipated Completion Date	Notes
We anticipate that the current trend will result in a vigorous relationship between all interested parties. We intend to monitor the relationship between the PAC and the Dean's office and provide input as appropriate to ensure that meetings are sponsored, attended and productive.	CADD Program Chair	Ongoing		We feel a little apprehensive about losing some measure of input and control over some elements of the PAC to ensure that it does not suffer the same form of neglect encountered previously.

GOAL #22 Investigate the creation of a CADD User Society:

Short-Term Planned Action(s)	Led by	Begin on	Anticipated Completion Date	Notes
Continue planning program development opportunities in conjunction with Goals # 2 and #3 above.	CADD Program Chair, CADD Faculty	January 2013		There already exists a Vancouver Autocad User Society (VAUS) so we do not see that duplicating this effort would be useful. In CADD 2160 students attend a meeting of this user group. However, there are now many significant software platforms that are common to industry and to our program. In 2013 we tried to initiate a type of multi-platform user society in the form of a Drop-in training format but our location in Cloverdale has continued to present challenges to these efforts and we did not generate sufficient enrolment despite considerable support for the format. Our short term efforts will probably be restricted to planning as outlined in Goals #2 and #3 above.

Long-Term Planned Action(s)	Led by	Begin on	Anticipated Completion Date	Notes
The development of, and access to the 3 Civic Plaza location will greatly enhance the likelihood of success to a CADD User Society. In addition, we can see a direct relationship between a User Society and our initiatives in the area of Alumni Chapter development noted in Goal #20.	CADD Program Chair, CADD Faculty, CADD Alumni	September 2017	Ongoing	

GOAL #23 Develop degree pathways for Diploma graduates:

Short-Term Planned Action(s)	Led by	Begin on	Anticipated Completion Date	Notes

Continue to formalize articulated pathways for CADD program graduates into degree programs.	CADD Program Chair, CADD Faculty	August 2010	April 2017	There are 4 areas where we are currently focusing on to secure and promote degree pathways for our Diploma students. 1. BTech Degree – KPU: in August 2010 one of our faculty was instrumental in completing the FPP for a BTech Degree. It received Senate approval and later received approval from the Ministry of Advanced Education. It has never received funding to run despite very strong support from Industry, Trades and Technologies. We still see this as the strongest and best way to secure a degree pathway for our students and the multitude of trade accredited professionals requiring a degree for employment advancement opportunities. We have, and will continue to petition the administration at all opportunity to re-visit the tremendous opportunity that supporting this degree would represent. Last year we held several discussions with the Dean of Trades and Technologies to discuss implementation requirements for the BTech and some effort was funded to determine the course composition and new course development requirements. 2. Construction Management Degree – BCIT: We are developing a good relationship with BCIT in creating a stable pathway for our CADD Diploma Grads to transition into this degree. As in most articulation efforts of this nature, we anticipate a semester of bridging courses is required to accomplish course prerequisite needs and other academic requirements. We have seen 2 or 3 of our Diploma grads accepted into this pathway in the last two years.

				3. Business Degrees – KPU: Changes to process at KPU has seen some difficulties arise in creating a seamless transition into this degree program. Up until recently, any 60 Undergraduate credits were sufficient to gain access into the 3rd year of these programs. Changes to this process, in large part due to changes in prerequisite requirements to 3rd and 4th year courses, have made this transition a little less seamless. Since August 2015 we have undertaken discussions with the School of Business to prepare a more stable pathway for CADD Diploma Grads with the intent that we may integrate some flexibility in our own Diploma course composition for students who declare their intent to transition into a Business Degree, and, to allow them to create an Educational Plan that may include plans for a Bridging semester as required. 4. Building Science Degree – TRU: In March 2015 we participated in meetings with TRU with the intent of preparing an Articulated Pathway for CADD Diploma Grads to transition into the 3rd year of their Building Sciences Degree. We were able to identify the need for KPU to create 3 new courses that would create a seamless pathway into the 3rd year of this degree. We have not proceeded with preparing an MOU or with course development as a result of budget restrictions at all levels at KPU and the unlikelihood of receiving appropriate funding. Instead, we are in the process of re-working our efforts to see how we can prepare a pathway for our students to

				complete their bridging requirements at another Institution. We intend to seek other degree opportunities that are appropriate for our Diploma Grads. In addition to these degree pathways, we have in place an MOU with KPU Engineering that provides for Engineering students to transition into the CADD program to complete a Certificate or continue into the Diploma with transfer credits from their 1st year in Engineering. This summer we have 3 KPU Engineering students enrolled into CADD program courses. In 2008 we completed an MOU with the SFU School of Mechatronic Systems Engineering (MSE) providing them with the same transfer credit opportunity as provided to KPU Engineering students and where KPU CADD students were given certain transfer credits into the SFU MSE program. In 2013 this MOU became obsolete as the SFU MSE program underwent program level changes. We were able to provide alternative pathways to SFU MSE students over 2014 and 2015 but were no longer able to provide this option in 2016. We are currently working with SFU MSE to re-negotiate this MOU in recognition of its value to both Institutions and students. Even with this circumstance, we were able to secure 4 SFU MSE students into the CADD program this summer. Since 2008 we have seen approx. 27 SFU students participate in this MOU with most completing a Certificate in CADD Technologies with a Mechanical Specialty. We know of at least one CADD Diploma grad that has transitioned into the SFU MSE program.

Long-Term Planned Action(s)	Led by	Begin on	Completed by	Notes
We firmly believe that this initiative is the most important "next evolution" of our program and anticipate that several initiatives in this regard will be developed over 2016-17. We anticipate that we will have formal articulated pathways in place with all the Institutions and degree programs noted above by April 2017.	CADD Program Chair, Dean Trades and Technologies	September 2016	April 2017	

KPU | KWANTLEN POLYTECHNIC UNIVERSITY
Faculty of Trades and Technology

May 27, 2016

Senate Standing Committee on Program Review Kwantlen Polytechnic University

Institutional Response: Computer-Aided Drafting and Design (CADD) Technologies

As Dean of the Faculty of Trades and Technology, and on behalf of the Provost and Vice-President Academic, Dr. Salvador Ferreras, I would like to congratulate the faculty and staff of the CADD department for their efforts and commitment in undertaking this comprehensive program review and for their readiness to make a strong and positive contribution in the next steps they have identified in the Program Review Action Plan.

We would also like to acknowledge the leadership of Daryl Massey, Chair of the department, and thank him for very effectively leading the team in this endeavor.

The recommendations and responses outlined in the Program Review Action Plan are extensive and will need the combined support of the program faculty and staff, Dean's Office, and institution to realize them. The majority of the issues identified, and the recommendations and responses that arise from them, are consistent with KPU's mandate as well as the Faculty of Trades and Technology's direction and vision, and therefore are supported.

The need to establish and align the program's vision and mission with KPU's Vision 2018 and Academic Plan, the Faculty of Trades and Technology's growth in Advanced Manufacturing and Clean Technology, and best practices in flexible, quality pedagogy is a high priority. KPU's CADD program enjoys a strong and positive reputation on account of its rigorous curriculum and teaching standards. In order to maintain up-to-date currency and to adopt leading best practices, it is essential that proposed program and curricular changes (some already underway) respond to current industry needs and that the program pursue the continued professional development of its faculty. As identified in the action plan, this will involve engaging subject matter experts in teaching, focused professional development, and implementing curricular revisions, including the incorporation of the learning outcomes and content areas identified. The program is in a good position to move forward with this; in fact the faculty have already begun to incorporate many of the recommendations within the current curricular framework.

The department is indicating a will and desire to grow programmatically. This is supported by the institution. Progress is evident through ongoing relationship and programmatic development that supports student mobility between KPU and other Universities, Institutes and Colleges. Consideration of curricular changes or additions may be required to create access points for First Nations and international students.

The department is committed to supporting students in diploma and degree pathways to ensure a seamless pathway to professional technician and technologist designations.

Student participation in industry through various means, such as work practicum, work experience, mentorship with alumni is encouraged. Increasing integration of technology is also seen as a valuable area of focus. This may include integration of technology found in architectural, drafting, and related engineering firms such as 3D printers and CNC routers.

Professional development is a key focus in supporting industry and student needs. It has been suggested that improved access for potential clients and students would be facilitated by building the capacity to have the program ‘mobile’; able to work out of any campus or business location without significant reduction in quality of delivery. This may be supported through student-owned laptops, flexible delivery times, use of remote access technology, and moving the main operations closer to Skytrain and main bus services.

The CADD program reduced capacity from 24 to 20 students some time ago, struggles with low student enrolment particularly in the summer semester while it remains difficult to fill spring courses. Discussion with the Provost, Dean, KFA, Registrar’s office, and faculty members is ongoing with regards to identifying student access to courses and programs. Both 3 Civic Plaza and the Richmond campus have been identified by the department as locations where they may have greater access to students. Access to Skytrain and bus service is critical. The Richmond campus is close to the School of Design and the Faculty of Science and Horticulture - Applied Physics. These are identified by the faculty as being ideal in supporting cross faculty educational opportunities, which are encouraged by the institute.

Given that there will be no increase in budget allocated to the CADD program, further requests for staffing or faculty/chair release, technology, resources, and professional development, will have to be considered within the existing budget structure; any potential increases in one area would need to be from the reallocation of funds from another area of the CADD budget. In light of this, the Dean’s Office will support the investigation of other funding opportunities, including funding available through the

Office of Research & Scholarship, 0.6% Faculty PD Funding, and other alternatives such as non-base funded Continuing and Professional Studies. Over time, as the latter initiative develops across the Faculty, the department may be able to apply to the Dean's office for initiative funding.

The Dean's Office is fully committed to making strong and positive connections throughout the university to ensure that systems for students and faculty are effective and access to support is readily available. I will assist the Associate Dean and department Chair in making further connections with key parties in order to facilitate smoother operations. Productive relationships with our industry partners, program PAC's, and communities are also a high priority.

In closing, we would like to congratulate the faculty and staff for this positive team effort. The group has already undertaken a number of changes to address the goals of the action plan. I look forward to working closely with them as we move forward.

Sincerely,

Brian Haugen
Dean, Faculty of Trades and Technology

Cc: Dr. Sal Ferreras, Provost and Vice President Academic
Daryl Massey, Chair, CADD Technologies
David Riel, Associate Dean Faculty of Trades and Technology
Amy Ditchburn, Divisional Business Manager, Faculty of Trades and Technology

Program Review One-Year Follow-Up

One-Year Follow-Up for: CADD Technologies
Date Self-Study Report approved by SSCPR: 09-30-15
Date Action Plan approved by SSCPR: 06-15-16

Date One-Year Follow-Up submitted to SSCPR: 05-31-17
Date of External Review: 03-17-16

Add or remove rows as needed

GOALS	PLANNED ACTIONS	LED BY	BEGAN ON	COMPLETED BY	PROGRESS TO DATE/NOTES
GOAL #1 Investigate the opportunity of Co-op options:	We will re-apply to the Co-op Program and attempt to address the issues encountered in the past when our request was rejected. We will develop a Work-placement program. With any degree of good fortune, we envision that the Work-placement program should be successful and will require only minimal administrative effort from the CADD department. We anticipate that it will become a relationship between the PAC (and others) and our current students where the CADD department will act largely as an intermediary to: 1. Communicate this opportunity to students 2. Provide oversight to ensure that the intent of the program is being maintained	CADD Program Chair, PAC Chair, KPU Co-op Administration	September 2016	On-going	We have undertaken an effort to re-apply for the Co-op Program and have held a few very positive meetings with Shawn Erikson. In the last meeting, we met also with Dean Betty Worobec to help prepare a new budget proposal and other information for the 2018 Fiscal Budget. Since the completion of the Action Plan in 2016 the CADD Program has moved to the Division of Science and Horticulture (as of April 1, 2017). We are pleased to confirm that the 2006 CADD Full Program Proposal contains provision for a Co-op component that complements our objectives and may be able to combine with other initiatives in this regard with Science and Horticulture. During consultation with the Office of the Registrar we have confirmed that a Program Change will be required to include new credentialing to include the Co-op option for CADD students. Work is this is now underway. At our November 2016 Program Advisory Meeting were we able to review with them our previous Co-op application and the survey data that was collected at that time. The PAC provided an Endorsement Letter for us that indicated their support for this endeavour and re-validated the previous survey data as remaining currently valid. They included a few additional notes and comments resulting in an even more positive endorsement. With the aid of Shawn Erikson and the Dean's Office at S&H we expect that we shall have a complete proposal prepared for September 2017 and the Program Change approved by November 2017. If our application is successful a Calendar change will also be required which will require approval by April 2018.

	3. Ensure that our students' well-being and benefit is being maintained 4. Ensure that the benefit to Industry is maintained through applicant screening, consultation, etc.				
GOAL #2 Investigate expansion opportunities at KPU Richmond and KPU 3 Civic Plaza:	Promote the move of all or part of the CADD Technologies Program into 3 Civic Plaza at every opportunity. We hope that our efforts will see the CADD program newly located at 3 Civic Plaza and offering additional courses via a Portable Classroom format to all KPU campuses. We already have strong connections and survey data that indicate needs in Science and Engineering, the School of Design and Trades and Technology. Our software is now "Cloud Based" and very IT friendly to this format.	CADD Program Chair, CADD Faculty, Dean – Trades and Technology		On-going	Our efforts through 2015/16 in this regard looked very positive. We were vetted through the consultation process and participated in meetings with the 3 Civic Plaza Planning Committee through the space planning and budget process. We worked with Facilities to prepare the Space Planning drawings contained in the President's Board of Governors report in June 2016. We met with the projects' Architect and staff to confirm and review CADD Program space requirements and remained actively involved in the process until August 2016. Unfortunately, we did not receive final approval to see our program moved into 3 Civic Plaza. However, we look forward to the completion of the project so that we can review again how we may assess our ability to use available space at 3 Civic Plaza to run some CADD Program courses as well as Continuing Professional Studies (CPS) courses. We remain committed in seeing this location enhance the CADD Program in the future. We are continuing to work with our PAC to develop CPS courses suitable for this location.
GOAL #3 Investigate the viability of professional courses and continuing education:	Create 5 to 7 CE and CPS courses designed to operate from 3 Civic Plaza Our Long-Term Plan in this regard has two scenarios: 1. Our program is moved to 3 Civic Plaza and we provide both Based Funded and non-Base Funded courses at this location. This location will be ideal for offering CE and CPS	CADD Program Chair, CADD Faculty, PAC Chair		On-going	As noted above, we anticipate that we shall be ready with CADD CPS courses once we can confirm the type of space available for our use in the new 3 Civic Plaza location. We are meeting with our PAC this May 2017 and intend to confirm the outline of several courses with the intention of proposing them to the CPS administrators.

	courses in CADD Technologies. 2. Our program remains in Cloverdale (or moves to Richmond) and we use our Portable Classroom to provide CE and CPS courses in addition to offering them at 3 Civic Plaza.				
GOAL #4 Investigate opportunities for foreign students:	We will remain in contact with the International Students Office to ensure that they have current program information to provide to student inquiries and work with them in relation to Goal #6. We anticipate that KPU will have an increased interest in attracting International students. We will support these initiatives in any way that we can and feel that CADD is well placed as an attractive program for these students. We expect an increased number of International student applicants over time.	CADD Faculty, Dean's Office Trades and Technology		On-going	We met with Tanya Sehgal and most of the team of recruiters at the International Students Office in Feb 2017 to review the CADD Program with them and to discuss their recruitment and admissions process. We were able to provide to them some insight into our program and were able to identify with them strengths in our program that make it attractive to international students. As part of our Admission Requirement student applicants are to attend an Information Session. We have prepared a CADD Information Session video to help those who are not able to attend the regularly scheduled sessions. Though it is intended to help both domestic and international students, this video contains some information specific to helping international students understand the KPU admission process. This video can be made available to students anywhere with access to the internet so it is ideal for international students. We were able to clarify some procedures with Tanya and her staff that have since been incorporated into a newer version of the video. CADD continues to see international student numbers which significantly exceed KPU institution averages. We anticipate that these numbers will increase over time through these types of efforts and through continued collaboration with the International Student Office.
GOAL #5 Investigate opportunities for aboriginal students:	Develop a Math/CADD Discovery Program with a non-profit partner. Building on the success of this first initiative, expand this opportunity to create access to a larger Aboriginal Community	CADD Faculty Member Joanne Massey		On-going	The CADD program is very pleased to have been able to establish an excellent relationship with the non-profit organization of Eagles of Tomorrow Education Society (EOTES). In June of 2016 we were able to partner with them in providing a one day introductory CADD training component into two Aboriginal Math Camps that they undertook for grade 8 to 12 students. One camp was offered through the Langley School District and the other was through the Vancouver Native Education Centre. KPU CADD instructor Joanne Massey has been instrumental in developing this relationship and the CADD support components. KPU (through the CADD Program) was able to provide 20 laptops for use to make possible this initiative. This year two more camps are planned in the Surrey School District where the EOTES students will be coming into KPU Tech to take the CADD component in the CADD Lab. In addition to this early success, KPU has approved funding for an adult CADD Access Program for Aboriginal Peoples (CAPAP) which will be a 10 week, 3 course program run at KPU Tech in Fall 2017 and Spring 2018. Two other significant efforts are underway with funding applications completed for

					CADD Access Programs for the Aboriginal community. At the time of writing, every indication is positive in these applications. The first application is through Employment Services Skills Training Program (ESSTP) for the NEC-KPU-FRAFCA CADD Access Program. Its partners include: NEC – Native Education College EOTES – Eagles of Tomorrow Educational Society KPU – Kwantlen Polytechnic University FRAFCA – Fraser Region Aboriginal Friendship Centre CADD – KPU Computer Aided Design and Drafting program Industry Partners currently working with the CADD program and currently hiring CADD program students. Anticipated Start Date: Sept, 2017 Duration: 3 years Budget (3 yr.): $1,108,000 Participants will work within a modified program towards an Undergraduate Certificate in CADD and work with the FRAFCA support and Industry Partners to obtain employment. The second application is through the Aboriginal Community Based Training Partnership Program (ACBTP) for the KPU-NEC Joint Indigenous Computer Aided Drafting and Design Program. Its partners include: NEC – Native Education College KPU – Kwantlen Polytechnic University CADD – KPU Computer Aided Design and Drafting program Industry Partners currently working with the CADD program and currently hiring CADD program students. Anticipated Start Date: Jan 2018 Duration: 2 years Budget (2 yr.): $953,000 As in the FRAFCA application, participants will work within a modified program towards an Undergraduate Certificate in CADD. We feel that these initiatives are an excellent effort in reaching this Goal's outcomes. In addition, we find that they help to contribute to the greater KPU effort in Truth and Reconciliation with the Aboriginal Communities of British Columbia.

GOAL #6 Formalize pathways for students not meeting entrance requirements:	Create a formalized pathway and information method to keep these students at KPU. See also Goal #23 Maintain the Pathway established above by monitoring KPU policy changes and CADD Program entry requirements.	CADD Program Chair, Office of the Registrar, Admissions, International Students Office		On-going	Through efforts such as our in-class and online Information Session (as noted in GOAL #4) we believe that we are helping to inform KPU applicants of the options and programs available at KPU for students who need help meeting entrance requirements. We have undertaken discussions with admission personnel and the Registrar's Office to make sure that early efforts to identify students with these needs are coordinated with our recruitment efforts and the information contained in our Information Sessions. In addition, we have been working closely with the Academic Advisors associated with CADD so that our efforts also remain coordinated and in line with current KPU policy.
GOAL #7 Increase integration of 3D printer and router:	Purchase additional equipment and facilitate Instructor training in these areas. Increase course material integration and expertise in this technology	CADD Faculty		September 2016	Several CADD Faculty members have integrated the use of the 3D printer into course work and projects. This equipment is particularly well suited for application into the Architectural and Mechanical projects and has been extensively used in the past three semesters. We have found that as instructors become increasingly proficient in the use of the equipment they are then able to help and assist other instructors and students. This increased skill helps to make equipment integration into project work more likely, safe, and trouble free. As a result of our success in this, we have since purchased a second (smaller) 3D printer to assist in the increased volume of demand.
GOAL #8 Increase experiential learning:	Examine how Experiential Learning can be expanded into other areas of the CADD Program Create other opportunities for Experiential Learning through course offering expansion in CE and CPS courses	CADD Program Chair, CADD Faculty, Dean – Trades an Technology		On-going	The effort of increasing Experiential Learning opportunities is proving to be a bit of a challenge due to time constraints and already heavy existing course content. Budget constraints also contribute to this challenge. What is becoming apparent is that we will have more immediate success by providing options to students through CE or CPS offerings in this regard. While this option will be able to provide opportunity to CADD students, there remains a challenge in securing space, scheduled time and qualified instruction. Though we have moved to S&H, we remain in a positive relationship with the Trades and Technology administration and faculty so we anticipate that we will be able to work this out in the future. We have not yet found sufficient time to fully develop these options since the completion of the Action Plan.
GOAL #9 Increase flexibility in the composition of credentials:	Update all course outlines and prepare a Program Change for Senate approval to create a flexible composition of credentials. Create additional courses in step with PAC, Industry and economic conditions to be introduced into current CADD Program offerings.	CADD Program Chair, CADD Faculty	September 2016	April 2017	On April 24, 2017 Senate approved a CADD Program Change which includes the components necessary to provide flexible credentialing to our CADD students. Included in the change was a complete review and update of all CADD course outlines to bring them into conformity with current language guidelines and the newly introduced Course Outline templates (online Sept 2016). Extensive prior review with the Office of the Registrar was undertaken to ensure a streamlined and universally consistent application of changes to ***Prerequisites*** and ***Required for Credential*** areas so that credentialing and registration processes should be seamless. These changes were designed to be robust so that future language in MOU's and other agreements will remain able to resist breakdowns as the flexible nature of the Program Change take effect. In addition to these program level changes, 4 new course outlines were designed to be able to provide current and relevant delivery of Special Topics. This will allow the CADD Program to react swiftly to "Job Ready" industry requirements while maintaining credential integrity. We expect that this will assist students who are looking to continue into degree pathways after completion of the CADD Diploma.

GOAL #10 Increase content related to writing skills and the interpretation and application of standards and codes:	Since this area is included in our current course outlines we will introduce discussion at department meetings to reinforce this goal. Through consultation with our PAC and with steady input from our Instructors we will monitor this effort, need and subsequent student performance. Feedback will be provided to faculty regularly through department meetings.	CADD Faculty		On-going	CADD Faculty have undertaken positive discussion of this topic in and out of Department Meetings. These discussions have resulted in some significant efforts in meeting this goal. It is apparent that certain CADD courses are more appropriate than others to the introduction of more intensive writing and interpretation components to meet this need. When they are introduced into the 1st semester courses such as CADD 1161 they are applied on a basic level. More rigorous efforts can be applied specifically to project work as they progress through the 2nd to fourth semesters. Several courses include major projects that include extensive investigative research, reporting and interpretation of concepts in design, drafting and application to industry. Building Code research, citing and applying design standards, etc. is a significant and growing component in several course across all specialties.
GOAL #11 Increase program skill set by hiring SME's:	As employment opportunities arise, we will structure our searches to place a priority on expanding faculty Subject Matter Expertise (SME) New SME hires will continue to depend on the timeframe of existing faculty retirement and/or replacement. This precludes the possibility of faculty expansion.	CADD Faculty Search Committee		On-going	We are pleased to have had Mr. Rick Dyck join our faculty as an expert in REVIT software. This is an intensive Building Information Modeling (BIM) software used extensively in Architecture. Rick comes to us with many years' experience in this field and in the use of this software. As time and opportunity allow, we shall continue to look to expand our faculty Subject Matter Expertise.
GOAL #12 Encourage students to apply for credentials and attend convocation:	Introduce the completion of Credential Applications as part of course materials. We will monitor the success of this initiative through its first phase of implementation and continue to bring this issue forward through department meetings. If changes are warranted over time we will continue to address as required.	CADD Faculty	September 2016	On-going	We have successfully introduced the process of Credential Application into our classes. Though we will need some time to study the effectiveness of our efforts through some data analysis, we are pleased to note that there will be several CADD graduates attending Convocation this Spring to receive their credentials. This in itself is a great step forward and we shall continue to monitor and improve in our methods to promote this initiative.
GOAL #13 Encourage faculty to attend convocation:	Pre-schedule involvement in this and other program activities through a coordinated calendar. Maintain the calendar with current dates and events, encourage and maintain faculty attendance as a Department Meeting Agenda item.	CADD Faculty	January 2016	On-gong	In many ways this is the partner component to Goal #12 above. Since we began using the Program Activity Calendar we have seen at least two faculty members attend each Convocation Ceremony. In addition, we have found increased participation and the sharing of involvement in other events necessary to the successful operation of our Program. We update the Calendar and review dates and involvement at each Department Meeting.

GOAL #14 Increase field trips and guest speakers from industry:	Since this area is included in our current course outlines under Learning Activities we will introduce discussion at department meetings to reinforce this goal. Several of our Instructors have already successfully integrated this goal into their regular course delivery. Progress will be monitored over time and encouraged collegially.	CADD Faculty	June 2016	On-going	We maintain awareness of this Goal through collegial discussion at Department Meetings and other more general discussions. The change to a 13 week course delivery schedule has made an increase in these types of activities difficult. Current course outcomes have not decreased so making room for out-of-class activities causes us to be selective. Several instructors have made efforts at bringing in guest speakers as a way to increase this type of component. In particular, we have seen an increase in Industry representatives willing to present "real" expectations and experiences to our students. We shall continue to reinforce the benefits of this type of activity.
GOAL #15 Encourage students to utilize counselling, Learning Center and Library:	Implement methods where students are informed and encouraged in the use of available on-campus student resources. We will monitor the efforts of the Dean's office to increase student access to counselling services after regular hours. We shall continue to inform faculty on current initiatives through information and discussions at regular department meetings. We shall monitor student responses to campus services.	CADD Faculty	June 2016	On-going	We have undertaken an orientation process into our first week of classes each semester which includes a tour of the campus to help students identify on-campus services and resources. This orientation is repeated each semester to reinforce to students the availability of these resources and a familiarity with their location(s) on campus and the personnel involved. While this orientation contains many emergency protocol components it also contains identification of and instruction on access to student counselling, student enrollment services and after-hours security. While student needs in this regard are inconsistent, we shall continue to monitor efforts to ensure that students have regular access to these resources. In the CADD 1161 course (1st semester) all students participate in a Library Orientation (approx.. 90 minutes) where they are introduced to Library and Learning Centre resources. We believe that these efforts are resulting in students making more effective use of existing student services.
GOAL #16 Increase Faculty understanding of admission processes and pursue increased integration and involvement with these processes:	Undertake meetings and information gathering efforts with Admissions and the Office of the Registrar to better understand current process under "Transitions". Translate this information into the CADD Program effectively to the benefit of students and faculty. We shall monitor the effectiveness of this initiative and continue to work with Admissions and the Office of the Registrar to manage these affairs. We will monitor also if these departments are able to provide stable personnel in the	CADD Program Chair	January 2016	On-going	As indicated in Goal #9, the CADD Program has undertaken a significant Program Change to address this goal as well as the Goals stated in Goal #9. Over the course of time changes occur at all levels of Administration in a system as large as KPU. We have moved into the Division of Science and Horticulture partly as an effort to find greater synergy with an administration and faculty committees that are working regularly with similar program needs as our own. We feel that this will translate into a better understanding of process on our part as we continue to adapt and change our program over time. We have undertaken several initiatives over the past 18 months which have required significant levels of consultation with the Office of the Registrar. We have found that the required consultation process involved in program level changes can serve as a beneficial method of information sharing. The benefits of these efforts have not only been a better understanding of established process, they include and result in a better and more informed process of communication from CADD Faculty to the benefit of students and student inquiries.

	form of Admissions Officers to our program, this has been a problem historically. We shall keep CADD Faculty informed of the processes of Admissions by involving them in the Information Sessions and through topical discussions in our department meetings.				
GOAL #17 Continue to develop and follow a strategic plan:	Develop a new strategic plan upon the completion of the Program Review. 5 to 7 year seems to be an appropriate time frame to re-visit this process. Perhaps we can anticipate re-visiting this again after the next Program Review.	CADD Program Chair	June 2016	On-going	The final outcome of the Program Review is a set of 23 well-articulated Goals. In every fundamental way these goals, and other important revelations of the Self-study etc., frame out our Strategic Plan for the next 5 to 7 years. We had anticipated that the end of the Program Review process would provide to us an opportunity to retreat as a department to contemplate these results and to prepare a more comprehensive strategic plan. Unfortunately, it appears that the financial support for this process is no longer supported in the Program Review process.
GOAL #18 Strengthen relationships with Dean's office and other Trades faculty:	Continue to book regular information sharing meetings with the Dean and make invitation to the Dean's office to participate in all CADD undertakings. Relationships are a two way street. We hope that stability in the Deans Office will lead to longer and stronger relationships built of mutual respect and hard work. We intend to participate in this effort with openness and vigor.	CADD Faculty, Office of the Dean	September 2015	April 2017	We are pleased to have successfully migrated into the Division of Science and Horticulture. As has been briefly touched upon already, we feel that this move will enhance both the Division and our Program. We have begun the process of becoming familiar with our new administration and Dean's office, we anticipate that the coming months will see us fully integrated. We have been pleased to discover that regular communication and meetings are the norm and feel that this Goal has been fully realized. We continue to enjoy a good relationship with everyone involved in Trades and Technology and look forward to a continued positive experience with everyone at KPU Tech.
GOAL #19 Pursue accreditation with ASTTBC:	Prepare a new matrix of comparison between current CADD course materials and the newly established ASTTBC accreditation process. Make whatever efforts are necessary to obtain ASTTBC accreditation for the CADD Program.	CADD Program Chair, CADD Faculty, ASTTBC		On-going	We continue to wrestle with this Goal a little. Our frustration is due partly to a lack of clear process in ASTTBC itself. We are not alone in the frustration and our discussions with our colleagues at Drafting Articulation meetings indicates a general level of difficulty here. This lengthy delay in clear process from ASTTBC is probably hurting the benefits of this accreditation as industry appears to have moved on from seeing the full benefit of this affiliation. We still view this effort as worthwhile and will continue to look forward to seeing these difficulties resolved. In addition to seeing potential accreditation benefits this association helps us to review and maintain levels of rigor in our course outcomes.

GOAL #20 Develop stronger alumni association:	Investigate the benefits of creating a CADD Alumni chapter and communicating this benefit to current students and Alumni. We see that an active CADD Alumni will be beneficial to the program and to our grads. After the development of a plan we will work towards this initiative being successful.	All Faculty, KPU Alumni Association			Time has not allowed us to make much headway on this issue yet. We remain committed to seeing this initiative more fully developed in the future and will continue to put it forward for time and effort in the future. With our move to Science and Horticulture we are optimistic that we shall have additional resources available to assist in this effort.
GOAL #21 Increase Dean's office participation with PAC initiatives:	We feel this Goal will work closely with Goal #18 relating to a strengthened relationship with the Dean's office. We will continue to ensure that the Dean is invited to all CADD functions and would like to encourage a greater degree of attendance. The PAC is unique and would like to see this relationship demonstrate a direct appreciation for this form of Professional and Industry level interest in our program. We anticipate that the current trend will result in a vigorous relationship between all interested parties. We intend to monitor the relationship between the PAC and the Dean's office and provide input as appropriate to ensure that meetings are sponsored, attended and productive.	CADD Program Chair		May 2017	We are pleased to report on the excellent support we have thus far received from the Dean's office in Science and Horticulture. We have a PAC meeting scheduled for May this year and have received excellent support in its planning. We look forward to Dean Elizabeth Worobec's attendance at this meeting and expect her input to be valuable in every way.
GOAL #22 Investigate the creation of a CADD User Society:	Continue planning program development opportunities in conjunction with Goals # 2 and #3 above. The development of, and access to the 3 Civic Plaza location will greatly enhance the likelihood of success to	CADD Program Chair, CADD Faculty		January 2018	We view this initiative as an excellent way for our students to mingle with, and make connections to professional CAD users in the Lower Mainland area. With the opening of 3 Civic Plaza anticipated for Fall 2017 we expect that this Goal will see a greater likelihood of being realized. An attractive and accessible location is essential to making this effort successful and the location of 3 Civic Plaza will provide a perfect venue. As stated in some earlier Goals, we are waiting to see the type of space available for our use in the new Campus before we invest too much effort at this time.

	a CADD User Society. In addition, we can see a direct relationship between a User Society and our initiatives in the area of Alumni Chapter development noted in Goal #20.				
GOAL #23 Develop degree pathways for Diploma graduates:	Continue to formalize articulated pathways for CADD program graduates into degree programs. We firmly believe that this initiative is the most important "next evolution" of our program and anticipate that several initiatives in this regard will be developed over 2016-17. We anticipate that we will have formal articulated pathways in place with all the Institutions and degree programs noted above by April 2017.	CADD Program Chair, CADD Faculty		January 2018	Our earlier stated dates on this initiative have been set back a little on our timeline. We realized the necessary effort of the Program Change noted in Goal #9 as an essential element in this Goal's success and therefore placed most of our current efforts to that effect. With the changes now approved and in place we are now more able to efficiently pursue this Goal. In many ways we have found this Goal and Goal #9 to be partners in effort and reward. We expect that our discussions with the interested parties will now take a more positive and lasting step forward to the benefit of our students and to KPU.