BCCAT Engineering Articulation Meeting

Thursday, 30-Apr-2020 (10:00am – 3:00pm) - Location: Zoom Virtual Meeting

Voting PSI Attendees:

Wood, Renata	BCIT	rwood76@bcit.ca
Ballinger, George	Camosun College	Ballinger@camosun.bc.ca
Wlodyka, Mark	Capilano University	markwlodyka@capilanou.ca
Sibbald, Regan	Coast Mountain College	RSibbald@costmountaincollege.ca
Rudecki, Barbara	College of New Caledonia	rudecki@cnc.bc.ca
Buegeling, Trevor	College of the Rockies	TBeugeling@cotr.bc.ca
Todoruk, Tara	Columbia College	ttodoruk@columbiacollege.ca
Majdanac, Allan	Douglas College	majdanaca@douglascollege.ca
Poon, Michael	Kwantlen Polytechnic	Michael.Poon@kpu.ca
Tamas, Csilla	Langara College	ctamas@langara.ca
Lightfoot, Dennis	North Island College	Dennis.Lightfoot@nic.bc.ca
Verbisky, Lisa	Northern Lights College	lverbisky@nlc.bc.ca
Langedyk, Ken	Okanagan College	klangedyk@okanagan.bc.ca
Castro, Jan	SFU	fas_recruitment@sfu.ca
Switlishoff, Elroy	Selkirk College	elroys@telus.net
Ahmed, Faheem	Thompson Rivers University	Fahmed@tru.ca
Tsang, Herbert	Trinity Western University	herberttsang.twu@gmail.com
Jaeger, Carol	UBC – Vancouver	carolj@apsc.ubc.ca
Cao, Yang	UBC – Okanagan	yang.cao@ubc.ca
Jackson, LillAnne	University of Victoria	engradu@uvic.ca
Mulhern, Peter	University of the Fraser Valley	Peter.Mulhern@ufv.ca
Helle, Steve	UNBC	Steve.Helle@unbc.ca
Karavas, Costa	Vancouver Community College	ckaravas@vcc.ca
Dick, Brian (Chair)	Vancouver Island University	brian.dick@viu.ca
Semple, Jacklyn	Yukon College	jsemple@yukoncollege.uk.ca

Non-Voting PSI Attendees

Dunn, Brent	BCIT	Kirkey, Jennifer	Douglas College
Burrage, Peter	Camosun College	Taylor, Norm	UFV
Chen, Susan	Camosun College	Murphy, Mary	UBC – Vancouver
Li, Winton	Capilano University	Ostrikoff, Patti	UBC – Okanagan
Lajeunesse, Lisa	Capilano University		
Maalej, Sirine	Columbia College		

Non-PSI Guests (Non-Voting):

Case, Brian	BC Campus	Carey, Jason	University of Alberta
Fleming, Rob	BCCAT	Dyck, Nicole	University of Alberta
Frank, Brian	Queen's	Myers, Melanie	BC Campus
Titilope, Adebola	Queen's		

MINUTES

Item #	Topic
1.	Meeting open for attendees (9:30am)
2.	Approval of the Agenda - Moved by A.M. (Douglas) - Seconded by P.M (UFV) - No opposition Approval of the Minutes - Moved by R.S. (CMC) - Seconded by R.W. (BCIT) - No opposition
3.	Welcome from Chair
4.	Check-In / Attendee Introduction Question: *"What new thing have you learned in the last six weeks"* *Guests:* • BCCAT • BC Campus • EGBC (Greetings – Read by Chair) • Queen's University • University of Alberta
5.	First-Year Engineering Curriculum *Common Curriculum Project* - Grants provided to 10 institutions for implementing common core (CapU, CMC, CNC, COTR, Langara, NIC, NLC, TRU, VCC, and VIU). - Six course outline shells created and posted on Moodle site. - Excess funding available, but not for capital items. *Open-Text Book Resources* - Current adoptions in MATH, PHYS and CHEM - Funding to cover gaps in common curriculum – i.e. Hibbler text - Working on open homework system. - List of resources for online learning being created. - Ongoing Resource Development Opportunities *Discussion* - UVic & UBC recognized that the transition to the new curriculum may take a few years as it depends on the design being taught by a licensed engineer. They requested that

sending institutions contact them as soon as possible when the courses are taught by a licensed engineer.
- Work is being done to build links to BCIT
- P.O. (UBC) working on a Design for First-Year Engineering Student text – likely provided on a cost-recovery model.
- P.O. (UBC) has made the "Transition to University Learning" resources available on the Moodle site. Performance of UBC students has been tracked, and those students who went through the resources have been found to perform better.

6. COVID 19 Response

Institutional Response

- Concerns about pass/fail grades and how to transfer them to UVic/UBC. Answer – UBC and UVic students have option of CR/D/F after seeing final letter grade. Transfer students will be evaluated the same as direct entry students. Non-letter grades still need credit to be given. SFU's policies are clear about the pass/fail combinations. Minimum of 50% of courses need to be letter grades.
- TRU and UNBC are going to be gentle about pass/fail/withdraw grades. These schools are planning on extra tutorials in the Fall to deal with anything that might need to be "topped up".
- UBC has opened its second-year application. Students will now be required to indicate their preferred two top programs. There has always been a question related to how impacts outside of school may have affected their grades – it is assumed that COVID-19 would be included in that response.
- Douglas asked UVic if there would be some flexibility for students with more withdrawal grades as Douglas did not have a Pass/Fail option. Answer: Yes, if they have a minimum number of courses, they will be placed in the undeclared pool as opposed to guaranteed entry.
- UBC is (as always) basing entry on the number of spaces available. They will start at a 3.1 admission level, and work down. UBC is being as flexible as they can.

- Academic Misconduct
  - Open learning students were expected to write their exams in a face-to-face proctored space, but that did not happen.
  - Concerns about cheating were broadly expressed.
  - Generally, assessments were shifting to move open book tests.

    - Live video feeds were used to help proctor at some institutions
    - KPU used randomized multiple-choice questions, and randomized numbers for calculated questions. Timing was also constrained to avoid use of Chegg.com and similar services.
    - UFV used video interviews as a means of assessment.
    - Concerns were raised over privacy issues when using video invigilation.
- Student Transfer Impact
  UBC, UVic, SFU, UNBC, TRU
- Remote Learning Experience / Best Practice
- Summer / Fall – Lab/Project work
    - UVic will have 200 students doing large project courses during the summer. Tas are now "online engagement helpers". It has spent considerable time over the past month planning on how these courses will be implemented, and suggests to check back in a month to see how it has all worked out.
    - BC Campus will provide a table of remote delivery products with regards to location of data storage.
    - BCIT observed that the first-year students are missing being able to learn from upper-level students due to their work being remote.
    - KPU will be using ioLabs for mechanics experiments this summer – students are able to do these experiments at home. ioLab kits can be rented by the publisher, and KPU is creating $100 kits (or less) for the optics and electricity labs. Students were asked to "walk" instructors through experiments.
    - CMC and Douglas had students watch videos of the experiment being done, and then were asked to analyze data.
    - UVic asked if videos could be shared broadly.

8.. AOB

- P.M. (UFV) suggested a monthly Zoom meeting be organized. This idea was well received by the committee.

9. Election of Chair / Vice-Chair

- Michael Poon (KPU) was elected chair for a four-year term by acclamation. Brian Dick (VIU) was elected Vice-Chair for 2020/21 to facilitate transition.
- It was suggested that the next chair sit as Vice-Chair for the year prior to the end of the Chair's term to facilitate the transition.

10. Location for 2021 Meeting / Date

- CMC continues to offer its Terrace campus for the 2021 Articulation meeting. This meeting is planned to take place 06.May.2021.

11. Adjournment

2020 BCCAT Engineering Articulation Meeting Report
BCIT Civil Engineering

All students start BCIT's Civil Engineering program in Level 1. There are 84 seats available in Level 1. Transfer credit is given for equivalent courses in 1st through 3rd years, lightening the student's load in those terms. Currently this is done on an individual basis but we are working to make this automatic for students with engineering transfer program credits. The common curriculum courses have been mapped to courses at BCIT. We are working to map specific institution courses so that they can be listed in our online transfer database. Please note that there is currently a very incomplete list of transfer courses on BCIT's website.

Student Success Numbers:

- 2019/20 intake: 30 students started the program with some post secondary experience (not necessarily all engineering transfer):
    - 3 from Langara, 2 from CapU, 2 from KPU, 1 from Douglas, 1 from VIU, 1 from UFV, 1 from Coast Mountain College, 6 from BCIT, 23 from other post secondary
    - Results for students with post secondary experience prior to program start after term 1:
        - Average GPA=70%
        - 85% remained on full load
    - Compare with direct from High school students:
        - Average GPA=63%
        - 68% remained on full load.

- 2020 applications: currently 36 applicants with some post-secondary experience (not necessarily all engineering transfer). We have extended our deadline to accommodate some challenges with grades due to COVID.

Report on the Engineering Bridge Programs at Camosun College

Submitted by: Peter Burrage, P.Eng, Coordinator for Engineering Bridge Programs

In addition to the one-year Engineering Transfer Program (separate report to be filed by the program leader), Camosun College operates five Engineering Bridge programs that transfer into third year of engineering at either the University of British Columbia (both the Vancouver and Okanagan campuses) or the University of Victoria. These programs operate on a block-transfer model where a two year technology program combined with the one year bridge program is considered to be equivalent to the first two years at the university. These programs are designed for engineering technology graduates from nationally accredited technology programs across Canada. Depending on the technology program, the university may require students to take an additional course or two to ensure they meet CEAB accreditation guidelines. Students come mostly from Camosun College, NAIT and SAIT, but we have had students from as far as Ontario enrol in our bridge programs.

The Engineering Bridge programs run over two semesters. Programs that bridge to UBC, start in the fall with students transferring to UBC the following fall. Currently, Civil Engineering, Mining Engineering and Mechanical Engineering bridge to UBC, with Civil and Mechanical bridging to either the Vancouver or Okanagan campus. Mining Engineering only bridges to the Vancouver campus. Programs that bridge to UVic, start in the winter semester, have the summer semester off and complete in the fall semester. Students then transfer to UVic in the following winter. The difference in the timing for the UVic bridge programs recognizes that UVic Engineering programs are co-op based programs. Bridge students have the option to complete a co-op work term in the summer semester between the two semesters of the bridge program. Currently Mechanical Engineering and Electrical and Computer Engineering bridge to UVic.

DIPLOMA PROGRAM	→ JANUARY TO JUNE BRIDGE (WINTER INTAKE)	→ SEPTEMBER THIRD YEAR ENGINEERING
Civil (or related) Technology	Civil Engineering Bridge	Civil Engineering at UBC-V and UBC-O
Mechanical (or related) Technology	Mechanical Engineering Bridge	Mechanical Engineering at UBC-V and UBC-O
Mining (or related) Technology	Mining Engineering Bridge	Mining Engineering at UBC-V

DIPLOMA PROGRAM	→ JULY TO DECEMBER BRIDGE (SUMMER INTAKE)	→ JANUARY THIRD YEAR ENGINEERING
Mechanical (or related) Technology	Mechanical Engineering Bridge	Mechanical Engineering at UVic
Electronics (or related) Technology	Electrical and Computer Engineering Bridge	Electrical Engineering at UVic

Interest in the Engineering Bridge programs remains strong with healthy waitlists. Seats are offered into the program based on academic performance in the technology program in consultation with the universities. While the number of applicants varies from year to year, it is related to the economy. When the economy is strong, the number of applicants tend to decrease as technology graduates are able to find good employment opportunities. As the economy has been strong, we have noticed a decrease in the number of applicants, particularly in mechanical engineering. Of course the COVID-19 pandemic is having a significant effect on the economy and on how the programs are delivered, but it is too early to say what the long term effects will be.

Currently UBC takes 66 students a year from our bridge programs: 32 in Civil Engineering, split equally between the Vancouver and Okanagan campuses and 34 in Mechanical Engineering, 16 at the Okanagan campus and 18 at the Vancouver campus. Mining Engineering usually only has one or two students applying each year, and these numbers are included in the Civil Engineering numbers.

UVic takes 70 students a year, 30 in Mechanical Engineering, and 40 in Electrical and Computer Engineering, although we often only have in the low 30s in Electrical and Computer Engineering.

In order to continue on to the third year of Engineering at university, students must pass all courses in the bridge program with a “C” or better. Students are allowed to repeat a few courses but must complete with a “C+” or better the second time. Success rate in the bridge programs is high, with more than 90% continuing on to university.

Camosun College - Engineering Transfer Program
Articulation Report 2019-2020
April 15, 2020

Introduction

Camosun College's Engineering Transfer program is wrapping up its seventh year. Our program provides students with a smooth transfer into second year engineering at UVic, with whom we have a transfer agreement. Virtually all our students intend to transfer to UVic, whose campus is a short distance away from our Lansdowne campus.

Enrolment and Student Success

We admitted 28 students into our Engineering Transfer program this year, which is our usual cohort size. Like the previous year, we had little to no waitlist, which is in contrast to very large waitlists we experienced several years prior. Starting Fall 2019, we increased the number of seats reserved for international students from 4 to 6 (of the 28) and all 6 filled. That number is to increase to 8 starting Fall 2020.

Notwithstanding the effects of the COVID-19 situation, applications to the program appear to be down for Fall 2020 compared to last year, at least among domestic students, continuing a trend that could result in Fall 2020 being the first intake in which we do not fill all our seats. Interest in the program from international students remains relatively strong, helping to offset a decline in domestic student numbers, but international student numbers could be significantly impacted by COVID-19.

The calibre of students this year is weaker than in past years with no more than about 1/4 of the students expected to fully graduate from the program. Note that admission to our program is on a "first come, first served" basis (among qualified applicants), not competitive entry, and entrance requirements are fairly minimal: C+ in English 12, B in Pre-Calculus 12, C in Physics 12, and C in Chemistry 12.

Of the 28 students who joined in Fall 2019, 5 dropped out of the program altogether and 4 others reduced to part-time status before the end of the first semester. Since then, 11 more are no longer on track to finishing the program by June because they failed or withdrew from one or more courses. That leaves 8 students who are on track to graduating in June. However, a couple of them are struggling with their second semester courses and may not be successful. A clearer picture will develop at the end of April when second semester course grades are posted following final exams.

Students who do not complete our program in the normal 10 months (September - June) may return on a part-time basis for a second year to finish it. We had about 10 such students return this year of whom at most 2 or 3 are expected to now graduate.

There are also several known “shadow” students who are not formally in our program but who are intent on taking all the necessary courses so they can effectively complete the program requirements and transfer to UVic. Three of them are on track to doing so.

Community Connections

On February 27, 2020, Camosun hosted an "Info Night," which attracted prospective students and their parents to our Interurban campus. There was fairly low traffic in the area set up for math, science and Engineering and only a couple people inquired about our Engineering Transfer program.

Program Changes

Starting Fall 2020 we are changing the chemistry and computer programming courses in our program from CHEM 120 to CHEM 150 and from COMP 132 to COMP 166, respectively. While new to the Engineering Transfer program, these courses are already part of the Engineering Bridge program and they transfer to UVic's CHEM 150 and CSC 111 courses. They are designed for Engineers and align with the CHEM I* and CSCI I courses in the common engineering curriculum. Students with credit for the old courses or who choose to take them instead of the new ones will still be allowed to do so since UVic will still accept them.

Susan Chen will be taking over as Camosun's new Engineering Transfer program leader starting June 1, 2020. Susan teaches statistics in our Mathematics and Statistics department and was the chair of the department and responsible for the program back in 2013 when it was first launched.

Open Textbooks

An informal survey of faculty and chairs in departments delivering courses in our program revealed that open source textbooks are generally not being used and there is lukewarm interest, at best, in adopting them.

We offer statistics as an option for students in our program and that course is one exception where an open textbook has been used. However, after a 3-year experiment, we will likely be moving back to a more traditional textbook starting Fall 2020.

The quality of open source textbooks, assuming there is something suitable and available, in relation to traditional textbooks is often cited as a concern. Also, changing textbooks can require having to overcome a lot of inertia, with faculty often reluctant to change, especially if the new product is not viewed as an improvement. While the adoption of open textbooks is often driven by the desire to save students money, some faculty have found other ways to do just that (e.g. producing course packs and supplements).

COVID-19

On March 14, 2020, Camosun announced the end of face-to-face teaching. Since then classes have been fully online. The deadline for withdrawing without academic penalty (but with no refund) was extended to April 9, 2020, the last day of the term before final exams. The college permitted instructors to modify how students are assessed (e.g. changing the weight of assignments, tests, exams, etc. or using different assessment tools). Students will still be issued letter grades for their courses as usual.

Our ENGR 175 (statics) and ENGR 195 (design) courses run May - June and will be offered online. How that will be managed remains to be seen.

It's too early to say how and whether enrolment in Fall 2020 will be impacted by the COVID-19 situation. International enrolment, for example, could be impacted if travel restrictions are maintained.

George Ballinger, Engineering Transfer Program Leader
Department of Mathematics and Statistics
Camosun College, Victoria BC

Capilano University Report:

B.C. Engineering Articulation Meeting

Thursday, April 30th, 2020, Online

Capilano University has two engineering transfer programs, both of which transfer to second year engineering at UBCV and UBCO, and fulfill most or all of the prerequisites for second year engineering at other B.C. universities.

Engineering Certificate Program

This program is modeled after first year engineering at UBC Vancouver and is geared towards strong high school graduates and post-secondary science students.

Statistics for the 2018/2019 year are as follows:

- 204 applications were received (27 international)
- 27 students registered

Statistics for the 2019/2020 year are as follows:

- 188 applications were received (40 international)
- 27 students registered

Engineering Transition Diploma Program

This is a two-year program for mature students who have been out of school for a number of years and for high-school students and post-secondary science students who do not have the prerequisites to begin first year engineering.

Statistics for the 2018/2019 year are as follows:

- 133 applications were received (19 international)
- 47 students registered

Statistics for the 2019/2020 year are as follows:

- 222 applications were received (55 international)
- 26 students registered

Other News

- Administrative duties for our Engineering programs were shared in the 2018-19 academic year between Lisa Lajeunesse, Mark Wlodyka, and Winton Li.
- For 2019-20, Lisa Lajeunesse will be stepping down as Co-Convenor, thus the engineering convenor duties will be shared between Mark Wlodyka and Winton Li.
- With the help of BCCAT, the Engineering department has secured Solidworks Licensing and is looking to implement it into First year course syllabus for Spring 2021 term.
- The Engineering Lab is a fully capable MakerLab space with a multitude of different equipment for First Year students to complete their projects. These include CNC Router, Portable Mill, Laser Cutter, FDM and Resin 3D printers, drones, as well as various workshop power equipment for students to bring their ideas to life.
- Capilano University is currently in the midst of a 3-year memorandum of understanding with the University of Victoria regarding the transfer of Capilano students enrolled in the Engineering Certificate program and the Engineering Transition Diploma into second-year engineering at UVic.
- Capliano University has also started negotiations with SFU for an Engineering transfer agreement for both programs, discussions are ongoing.

Respectfully submitted,

Lisa Lajeunesse, Mark Wlodyka, and Winton Li

Engineering Convenors – School of STEM
Capilano University

Coast Mountain College
Engineering Articulation Report 2020

Coast Mountain College (CMTN) serves the rich and diverse communities and learners of BC's beautiful northwest region including Terrace, Kitimat, Smithers, Prince Rupert, and Haida Gwaii.

In the past we have had about 5-10 students per year performing excellently in our science courses and moving on to engineering or a physical sciences degree at one of the other institutions. Last year we increased our numbers in this area to 18, with 10 going on to engineering and others going on to physics, chemistry, mathematics, and computer science degrees. This year we had 30 (18 international) physics students with 18 of them going on to engineering in the future.

We have a new first year certificate for Engineering which is now separate from the physical sciences certificate. We have passed two new engineering courses; ENGR 121 - Engineering Design and Drafting, and ENGR 122 - Engineering Design and Sustainability. The program to be offered in 2020/21 for the first time is as follows.

COURSE #	COURSE NAME	CREDITS	HOURS	PREREQUISITES	CO-REQUISITES
CHEM 111	Fundamentals of Chemistry I	3.0	90	Chemistry 11 or Chemistry 12 and Math 11 or Pre-Calculus 11	None
CHEM 122	Principles of Chemistry II	3.0	90	Chem 111 or 121 and Math 101	Math 102
CPSC 123	Computer Programming	3.0	90	Pre-Calculus 12 or equivalent	None
ENGL 101	University Writing	3.0	45	English Studies 12, English First Peoples 12 or equivalent	None
ENGL 151	Technical Writing I	3.0	45	English Studies 12, English First Peoples 12 or equivalent	None
ENGR 121	Engineering Design and Drafting	2.0	60	Min. grade of "C+" in Physics 12; Min. grade of "C+" in Pre-Calculus12	PHYS 121 and MATH 101
ENGR 122	Engineering Design and Sustainability	2.0	60	Minimum grade of "C" in ENGR 121; Minimum grade of "C" in MATH 101, Minimum grade of "C" in CPSC 123	PHYS 122, MATH 102, ENGL 151
MATH 101	Calculus I: Differential Calculus	3.0	67.5	Pre-Calculus 12 or equivalent	None
MATH 102	Calculus II: Integral Calculus	3.0	67.5	A grade of C or better in MATH 101	None
MATH 235	Linear Algebra	3.0	45	Precalculus 12 or Equivalent	None
PHYS 121	Advanced Physics I	3.0	90	Physics 12 and Pre-Calculus 12	Math 101
PHYS 122	Advanced Physics II	3.0	90	Phys 121	Math 102
	TOTAL	34	840		

We were to host the bridge building contest put on by the Engineers and Geoscientists Society this year but it was cancelled due to covid 19. We are currently working on finding local partners to provide guest speakers and collaborate with project possibilities. Our communications department is working hard to attract students to this program.

Open Textbooks are used for all math, phys, chem, and cpsc courses except math 235. Textbooks for the new engr courses and math 235 are currently being investigated. Challenges for adopting include adjusting teaching resources and time for faculty to review.

Regards,
Regan Sibbald
College Professor - Physics and Mathematics
CMTN Terrace
rsibbald@coastmountaincollege.ca
(250) 635-6511 ext. 5253

College of New Caledonia
2020 Engineering Articulation Report

CNC continues to offer an engineering transfer program. Upon completion of the program, students are eligible for an Applied Science (Engineering) Certificate.

In 2019/2020, the overall enrollment in engineering classes was similar to the last year. The enrollments in APSC 100 (Introduction to Engineering) and APSC 120 (Engineering Drawing) were: 15 and 10 students and the enrollments in PHYS 101, PHYS 102 and PHYS 204 were: 43, 13 and 5 students. Some students completed the program in one year while some chose to do the program over two years.

In order to align with the requirements of Common First-Year Engineering Curriculum (CFYEC), the existing CNC First Year Engineering (Applied Science) Transfer Program had to be modified. Some of the existing courses needed to be revised, while other courses needed to be developed. The proposal for program modification was prepared last fall and was approved by Educational Council in February 2020. The new program is scheduled to start in September 2020. Upon successful completion of the entire program, students will be eligible for the Engineering (Applied Science) Certificate. The CFYEC agreement was signed electronically in April 2020.

Modified First-Year Engineering (Applied Science) Transfer Program			
No	Course	Lecture, Lab hours/week	Credits
1	APSC 101	(2, 2)	3
2	APSC 102	(2, 2)	3
3	CHEM 150 or CHEM 111 + CHEM 112	(4, 3) (3,3) + (3,3)	3 3 + 3
4	CSC 109	(3, 3)	3
5	ENGL 103	(3, 0)	3
6	ENGL 229	(3,0)	3
7	MATH 101	(4, 0)	3
8	MATH 102	(4, 0)	3
9	MATH 204	(4, 0)	3
10	PHYS 101	(4, 3)	3
11	PHYS 102	(4, 3)	3
12	PHYS 204	(4, 0)	3
Total			36 or 39

The following new courses were developed:

1. APSC 101 – Engineering Design I - 3CR (2,2). APSC 101 will replace APSC 100 – Introduction to Engineering that is currently offered in Engineering (Applied Science) Transfer Program.

2. APSC 102 – Engineering Design II - 3 CR (2,2). APSC 102 will replace APSC 120 – Engineering Drawing that is currently offered in Engineering (Applied Science) Transfer Program.
3. CHEM 150 – Engineering Chemistry - 3CR (4,3). CHEM 150 will replace two chemistry courses: CHEM 111 (3,3) and CHEM 112 (3,3) that are currently offered in Engineering (Applied Science) Transfer Program.

The following existing courses were modified:

1. PHYS 101 – Introductory Physics - 3 CR (4,3).
2. PHYS 102 – Introductory Physics II - 3 CR (4,3)
3. PHYS 204 – Mechanics I – Statics - 3 CR (4,0)
4. MATH 204 – Linear Algebra - 3 CR (4,0)

A new Civil Engineering Technology Program was also approved by Educational Council and it is going to start in September 2020.

Barbara Rudecki, P.Eng.
Department of Physics & Applied Science
College of New Caledonia

Columbia College

2020 Engineering Articulation Report

We currently offer 2 Applied Science courses regularly, along with physics, chemistry, and math courses needed for the transfer program. The 2 courses are Applied Science 151 (Fundamentals of Graphics Communication for Engineers) and Applied Science 160 (Fundamentals of Computer Programming for Engineers). We still have Applied Science 122 in the calendar but the demand for this course is not high and it has only been offered one time.

Our engineering transfer program has continuous applications, and our application process is general, so we do not have clear statistics on the numbers in the program. APSC 160 and 151 are offered in alternating semesters. The enrollment for Summer 2019 for APSC 151 was 7, for Fall 2019 for APSC 160 was 14, and for Winter 2020 for APSC 151 was 21. Our engineering mechanics course is the only other course offered dedicated to engineers, and the enrollment in this course was 8 students in Winter 2020.

We continue regularly offering Physics 110 (Newtonian Mechanics), Physics 120 (Electricity and Magnetism), and Physics 130 (Waves, optics, and thermal physics), in order to facilitate transfer to SFU (110 & 120), UBC (130 & 120), and UVic (110 & 130). As our students need to take different physics courses for differing institutions, we would like to start offering the common curriculum and will begin articulation of these courses once things return to normal.

Maryam Samiei & Tara Todoruk

Columbia College
Vancouver, BC

COTR – Engineering Articulation Report

April, 2020

A. Program Success / Learning Outcomes

a. Student Enrollment number / trends

Initial enrollment: 11
Current enrollment: 9

Enrollment is stable. Two students withdrew with plans to re-take courses during their second year at COTR.

b. Expected success rate:

7 or more out of 9

Based on current performance in APSC 141 (Engineering Statics and Dynamics)

c. Known or expected transfer paths

Most students are undecided. The only transfer I was able to confirm was 1 student planning to transfer to UVic to go into Civil Engineering.

d. Program changes / innovations / challenges

Our engineering design courses (APSC 122 / 123 / 151) are currently in the process of having their curriculums updated. They will be replaced with two design courses that follow the requirements of the new common curriculum.

e. Community Connections and/or collaborations

Meetings have been held over the past year with the local representatives of the school board and indigenous community to explore possibilities for increasing indigenous enrollment in engineering.

B. Open-Text books

a. Adoption of open-texts in courses

Currently, none of the courses at COTR taken by engineering students use open-textbooks.

b. Open-texts currently in use

N/A

c. Challenges present to adopt (if not adopting)

Engineering Statics and Dynamics – Hibbeler has been the standard text for many years. If an open-text covering equivalent material (plus the desired Thermodynamics content) is found, adoption would likely happen quickly.

Engineering Design – Courses currently be re-designed. Textbooks (if needed) are yet to be determined.

Douglas College – Engineering Articulation Report – 2019/20

Program Summary: Douglas College Engineering consists of two programs:

- ***Engineering Foundations Certificate*** (EFC): A one-year program providing the required courses in the first year of an engineering degree. Designed for students who want to transfer to a university engineering degree program after one year of study.
- ***Diploma in Engineering and Fabrication Technologies*** (DEFT): A two-year program providing the first-year, and some second-year, academic courses of an engineering degree, as well as additional courses in fabrication and prototyping. Designed to give students a relevant "hands-on" experience prior to transferring to a university degree program.

Enrollment Information: The EFC and DEFT programs have the same entrance requirements. For administrative purposes, all students apply to the DEFT program only (*this has changed for 2020/21; see below*). Students can opt out of the DEFT program after one year of study and graduate with the EFC.

Students are admitted on a "first-come, first-served" basis given they meet the entrance requirements. The program application, admission and registration numbers are given below. Note that our programs have two intakes per year: one in the Fall (F) semester and one in the Winter (W) semester.

Academic Year	Applicants	Admitted	Registered
2017/18	232	51 (41 F, 10 W)	31 (23 F, 8 W)
2018/19	203	45 (32 F, 13 W)	35 (23 F, 12 W)
2019/20	206	41 (34 F, 7 W)	34 (28 F, 6 W)
2020/21 (to date)	120 (90 EFC, 30 DEFT)	7 (7 EFC, 0 DEFT)	TBD

For 2019/20, there were approximately 10 "no-show" students – students who were admitted to the program but did not register for courses. In addition, enrollments in our ENGR courses suggest there are about 10-20 "shadow" students: students that are not officially registered in the program but take (most of) the required courses. Enrollments are healthy in first-year ENGR courses, but weak in second-year ENGR courses. Our second-year fabrication and prototyping courses continue to be poorly enrolled.

Transfer Destinations: The majority of our students are interested in the one-year EFC over the two-year DEFT. Based on institution-specific course enrollments, the main transfer destination is SFU (with interest evenly split between ENSC and MSE), followed by UVic, then UBC. For students remaining at Douglas for over a year before transferring, most take only courses with direct transfer credit at universities. That is, few students take second-year ENGR courses or complete the DEFT, due to the lack of transfer credit.

Updates:

1. Guaranteed Transfer Pathways to UBC Engineering (Vancouver): Douglas College is now an *Engineering Transfer Program* partner with UBC Engineering. Douglas College students have two guaranteed transfer pathways into the second year of UBC's Applied Science degree program: the traditional one year EFC-based pathway and a two year DEFT-based pathway. It is anticipated that this pathway will improve interest in the DEFT program and the relevant second-year ENGR courses contained therein.

2. Guaranteed Transfer Pathway to SFU Mechatronic Systems Engineering (MSE): Douglas College signed a transfer agreement with the MSE program at SFU Surrey. Douglas College students now have a guaranteed transfer pathway into the MSE program, similar to the existing pathway with SFU ENSC (Burnaby).

3. Admission policy changes: Starting with the September 2020 intake, prospective students can apply to the EFC program directly, rather than be funneled into the DEFT program and opt out with the EFC. The lack of a direct application pathway into the EFC was a source of confusion and likely dissuaded many prospective students from applying. It is anticipated that this change will increase the number of students who officially register in the programs. Comparison with the 2018/19 data already shows a 25% increase in the number of applicants over this time last year.

Future Directions:

In the coming academic year, we plan to:

- Continue promotion of the program and the new transfer pathways with prospective and incoming students, academic advisors, industry partners and the local community,
- Establish transfer agreements with any remaining receiving institutions,
- Continue to align our curriculum in a manner consistent with the BC common first-year curriculum. To this end, a significant portion of time this past year was spent updating our ENGR I/II courses (among others). These updates will be sent out to the receiving institutions for feedback and finalized afterward. This process will continue and hopefully be completed within the coming year.

Allan Majdanac
Engineering Coordinator
Douglas College

Kwantlen Polytechnic University
Engineering Articulation Report

May 2020

First-Year Engineering Enrolment

KPU offers a First-Year Engineering certificate program with a capacity of 35-students at each of the KPU Surrey and KPU Richmond campuses. Enrolment in the program is still below capacity, but Fall 2019 Engineering student numbers did increase significantly this year, from 52-students last year, to 60-students this year. KPU provides a wealth of student enrolment data that allows are more detailed analysis of the KPU Engineering student population. Some of the enrolment data is shown in Table 1. Other interesting numbers from the 2019-2020 academic year include:

- 39 of the Engineering students are new to KPU, while 21 have taken at least one course at KPU
- 2 international students

Table 1: Admissions and enrolment data by academic year.

Academic Year	Total Applicants	Qualified Applicants*	Enrolled				
			Total	≤ 18 yrs	19-22 yrs	≥ 23 yrs	Females
2016-17	340	133	52	19	23	10	7
2017-18	290	153	54	26	19	9	5
2018-19	264	142	52	33	12	7	8
2019-20	312	154	60	28	24	8	8

*Qualified students meet all the prerequisites for the Engineering First-year program.

Although 60-students were enrolled in the Engineering program, not all students are taking the full complement of courses to complete the program in two-semesters. Some students are choosing to take the program over two years, while others are only taking the minimum courses required to transfer to a specific institution. In the Fall 2019 semester's APSC1124 Intro to Engineering, and APSC1151 Intro to Engineering Graphics, only had 43 and 38 Engineering students registered, respectively. However, total enrolment in these courses were 59 and 46, respectively. The significant number of non-engineering student registered in these courses can be attributed to students who want to take Engineering but for whatever reason were not accepted/chosen into the Engineering program, or previous KPU Engineering students re-taking these courses (KPU Engineering students are limited to one year in the First-Year Engineering program, after which they are re-classified as general science students). The Fall 2019 semester also saw a few non-science students from Business and Journalism taking the APSC courses.

The Fall 2019 semester grade distribution for the Engineering program was bi-modal, with 28% (17 students) with a GPA less than 2.0, and 43% (26 students) with a GPA of 3.0 or higher. Five percent (3 students) had a GPA of 0.0, meaning that these students registered for classes, but were no-shows. The Fall grade distributions for the Engineering students over the past few years is shown in Figure 1. One unfortunate trend is an increasing number of Engineering students with an average GPA below 2.0. This

appears to support the anecdotal observation that students are coming into first-year less prepared than before. In an attempt to help increase student success, the Engineering cohort is required to participate in a time-management and study-skills workshop run by the KPU Learning Centre. Of the two international students, one was highly successful and the other was not (mean GPA of the two international engineering students was 2.47, but the standard deviation was 1.93).

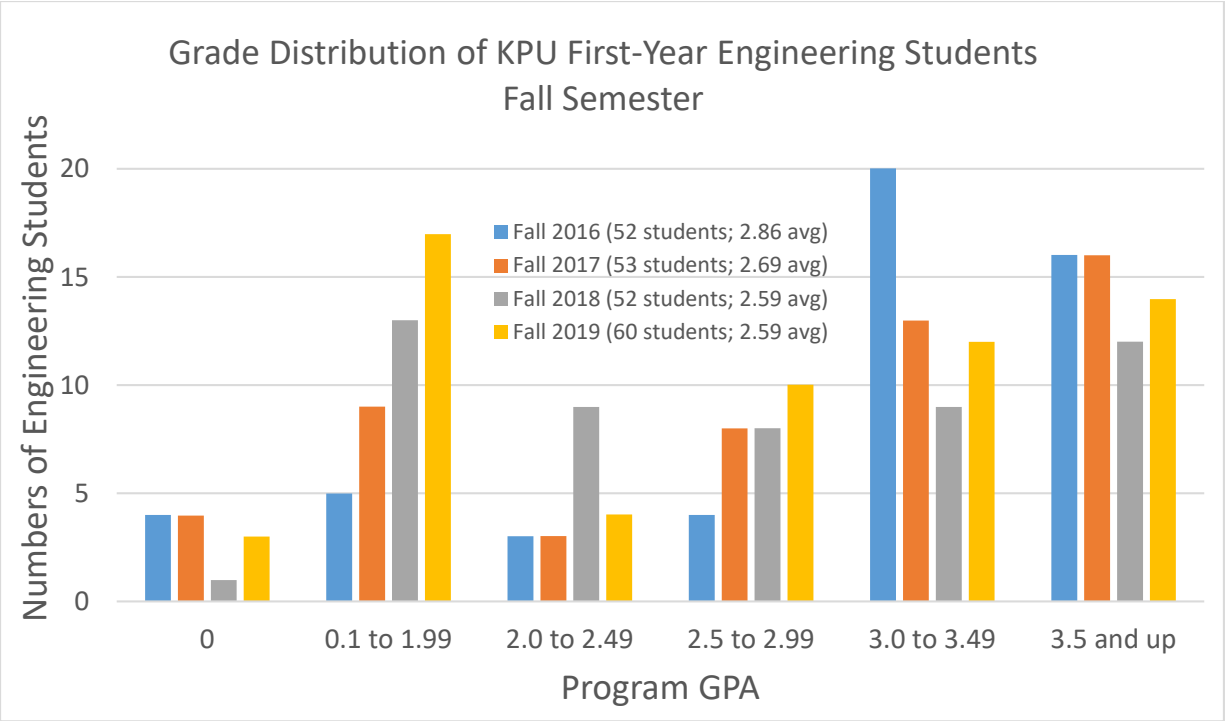

Figure 1: Distribution of grades for KPU First-Year Engineering students – Fall semester.

Spring 2020

With significant attrition from Fall 2019, enrolment in the Spring 2020 semester's APSC1299 Intro to Microprocessors was only 36 students. Overall GPA grades are not yet available, but the class average for APSC 1299 was about 76% (B+).

Students were two-weeks into their line-following robot group project when KPU announced the suspension of all in-person instruction. As the project was central tot he learning outcomes of the course and students had already invested significant time and effort to the project already, it was decided to continue the robot project, adapting the curriculum delivery and assessment as required to meet the evolving COVID-19 situation. For example, the challenge track competition required the students to replicate a specified track layout at home, then submit videos of their robot's performance on the track. Students have a limited time to construct the track and submit the videos. The final group presentations were done remotely using Big Blue Button. I was extremely proud of how the students managed to continue to work together through the adversity.

Curriculum Updates

The First-Year Engineering program was based on UBC's first-year engineering curriculum from over 10 years ago and is overdue for some updating. One change will be a new robot for APSC1299. The new Pololu 3pi is lighter, faster and more adaptable and customizable than the Sumovore robot we are currently using. Course outlines for APSC1124 and APSC1151 are also due to updating to more closely align with the Engineering Common Core and facilitate transfer of KPU students to SFU's Sustainable Energy and Mechatronics Engineering Schools. The Physics Department is also slated to review its sequence of first-year physics that will provide an opportunity to help align the KPU Physics offerings with the Engineering Common Core.

We are still looking to develop some kind of two-year engineering diploma program that incorporates the First-Year certificate courses while leveraging some of the 2nd year Physics courses and Product Design expertise from the Wilson School of Design.

Time-release for the Engineering Coordinator position was initially granted in the 2019-2020 budget, but then rescinded when KPU mandated the university-wide 4.5% cut to course offerings for 2019-2020. With the support from our Dean's office, we remain hopeful that the Engineering Coordinator will finally receive time-release as part of the 2020-21 KPU budget.

Michael Poon
Coordinator, KPU Engineering First-Year Program
Chair, KPU Department of Physics, Astronomy & Engineering

Langara College April 2020

Engineering Articulation Report (2019-2020)

Langara has two Engineering programs:

- **Engineering Transfer Certificate:** 1-year (2 semesters); equivalent to first year Engineering.

- **Applied Science for Engineering Diploma**: 2-year program; designed for students who don't yet meet the pre-requisites for the Engineering Transfer program, or who would like to take their courses at a slower pace. For many of our Diploma students, the program is a stepping stone towards getting admitted into the Engineering Transfer program.

Student data for the Engineering Transfer program:

> **2018-2019:** 394 applicants; 60 students accepted/registered; 35 registered for the second semester; 14 students achieved a GPA above 3.1, a further 2 students have a GPA between 3-3.1, and 6 students with GPA between 2.8-3. While the majority of these students transferred to UBC, we had several of the students transfer to various engineering programs at SFU (more than in a typical year).
>
> **2019-2020:** 372 applicants; 57 students accepted/registered; 47 registered for the second semester. This was a stronger cohort than the previous one: based on first semester grades, 28 students had a GPA over 3.1, a further 4 students had a GPA between 3-3.1, and 5 students with GPA between 2.8-3. This year's cohort had quite a large number of female students, and more high school students than in the past few years.
>
> **2020-2021:** 279 applicants to date (fairly close to the applicant numbers at the same time last year).

Student data for the Applied Science Diploma:

> **2018-2019:** 421 applicants; 50 students accepted/registered.
>
> **2019-2020:** 367 applicants; 48 students accepted/registered.
>
> **2020-2021:** 257 applicants to date. There is also a large overlap between the applications for the Diploma and Certificate programs (approximately 200 students last year).

For the 2019-2020 academic year, 13 Diploma students were admitted to the Transfer program (after finishing the first year of the Diploma). As in past years, these Diploma students seem weaker than our typical Engineering Transfer students, although some of the strongest Transfer students come from the Diploma. I am aware of 4 students in the Diploma who got accepted to UBC this year without going through the Certificate program.

Curriculum:

Langara has signed on to the Common Curriculum. As part of the process, we created two new courses (CPSC 1091, Engineering Design and Drafting, and CPSC 1491, Control Systems and Sustainable Engineering Design) to replace our two Engineering courses (CPSC 1090, Engineering Graphics, and CPSC 1490, Applications of Microcontrollers). The new courses place more emphasis on the engineering design process, and align closely with the content of the ENGR I and II courses of the Common Curriculum.

In response to UBC discontinuing ENGL 112, our English department has also revised their first year English course. The course ENGL 1127, Essay Writing and Short Prose Selections will be discontinued, and a new course, ENGL 1123, Introduction to Academic Writing will be offered in its place. Our hope is that this new course will better align with the ENGL I course of the Common Curriculum.

Program review:

Langara's two Engineering Programs are going through their first ever program review. Data was collected from current students, alumni, and faculty in the program, and based on this data, the Engineering Coordinator wrote a Self-Study reflecting the current state of the programs. We had an external review committee conduct a virtual meeting through Zoom with the above mentioned groups on April 22nd. As the result of the program review, there will be an Action Plan set out for the programs for the next 6 years, when we will again undergo program review.

Hiring:

I anticipate needing to hire for both CPSC 1091 and APSC 1010 (Fall), and CPSC 1491 (Spring). The hope is that we can find one instructor with P.Eng or Eng.L credentials to teach all three courses .

COVID-19 related information:

The program courses used both asynchronous and synchronous delivery for the last three weeks of the semester. The transition was fairly stressful for students – many felt that with the sudden change to online learning they could not keep up their study habits, and were falling behind. Our final exams were delivered online, and, with the exception of the second English (communications) course that replaced the final exam with a longer essay, all the program courses kept the regular final exam weight (40-50%, depending on the course).

Grading for Spring 2020:

The withdrawal deadline was extended until April 3 (last day of classes). None of the Engineering Transfer students withdrew from courses. At Langara, students with N or F (failing) grades will automatically receive a "NG" (no grade) notation instead, while students with C- or D may choose to receive a "NG". The "NG" does not indicate completion of the course or serve as a pre-requisite, it's use is that the course will not affect the student's GPA. Students are also allowed to defer one or more final exams under certain conditions. In this case they would be required to complete the course and get a grade by May 29th the latest.

Open textbooks:

- Linear Systems (MATH 1252): Linear Algebra with Applications by W. Keith Nicholson has been used for a number of years (together with online homework through Lyryx). This is the open version of an established textbook, and we are fairly happy with it, although the order in which topics are presented is that of a typical Linear Algebra course, which differs from how we deliver the course.

- Chemistry (CHEM 1154): the instructor tried using the OpenStax Chemistry 2 for CHEM 1154 in the Fall (the same open book is also used for other chemistry courses at Langara), however the book doesn't seem to be a good fit for Engineering Chemistry. We would be happy to receive suggestions of other open books better suited for the course.

- Our Engineering courses (CPSC 1090 and CPSC 1490) don't use textbooks, instructors use their own notes and free online resources. We would welcome open text books to aid in the delivery of the two newly created design courses.

Csilla Tamás
Engineering Coordinator
Langara College

NORTH ISLAND COLLEGE

2020 Institutional Report for Provincial Articulation Meeting April 30

Numbers

The number of students coming to NIC for engineering transfer is steady but low. We had eight students in each of our Engineering Design courses. More students are choosing to stay for two years, so we actually had 11 students who took advantage of the EGBC student membership (NIC, like many of the other colleges, cover the cost of bulk membership for our students).

Changes

This was our first year offering the design courses as two separate courses in Fall and Winter term instead of the concentrated course in May/June. This turned out to very good timing, since teaching a project-based course this spring would have been very challenging.

Our two design courses are roughly equivalent to the two courses at UVic. The first course focusses on needs assessment, generating design alternatives, evaluating design alternatives, and concludes with a client-based design project. This year's projects were done for the province's only kelp nursery business (happens to be a friend of mine). The projects were a device to automate the winding of seed-twine onto lengths of PVC pipe, and the design of a scaled-up kelp nursery (tanks, lights, pumps, compressors, etc.) to fit within a building footprint. The client was impressed with both projects.

Our second design course focusses more on skills: CAD (Fusion 360), rapid prototyping using 3D printer and common fasteners and materials, using sensors and motors for automation (Arduino), and then a final project which is to design an Arduino controlled NIM game including design of the playing surface and pieces.

So far, UVic and UNBC are the only receiving institutions to give credit for the new courses on BCCAT. TRU also recognizes the courses as part of a transfer agreement between NIC and TRU, but has not done the BCCAT transfer request yet. We have not heard from UBC, and SFU gives no credit.

We have also developed a new computer programming course for the engineering students based on C+ (our introduction to programming course currently uses Java, and it does transfer to most receiving schools, but to be compliant with the CFYEC document we are switching the engineering students to C+ starting in 2021.

Common First Year Curriculum

The changes to the design courses and the programming course make our curriculum consistent with the Common First Year Engineering Curriculum, and our dean should be signing the document this month.

Adaptation during COVID-19 Crisis

Like every other institution, we were forced to make changes to delivery and assessment after mid-March. In most courses, this meant switching to some form of online delivery and either timed online quizzes for "take home" exams. Instructors were given autonomy to do what they needed to do to make sure core learning outcomes were met while making sure that students were not unfairly impacted by the crisis.

In our 2nd design course, we only had the projects left to complete. Once students were no longer allowed on campus, we modified the project rubric to reflect the removal of the testing and trouble-shooting of the working prototype. The groups continued to "meet" online, and I think I have some of the best final reports that I've ever had. Usually they are trouble-shooting right up to the dead-line and don't spend enough time on their reports!

Engineering Articulation Report 2020

Northern Lights College

April 27, 2020

- Prepared by Lisa Verbisky -

1.0 Enrolment in NLC's Engineering Certificate

1.1 Current Enrolment

Northern Lights College's (NLC) current engineering certificate has four domestic students enrolled. However, student numbers in many of the courses are strong due to enrolment from students in other programs.

There is still the expectation that domestic student numbers will grow in future years to fill a cohort of 16 students with the common first year curriculum in place. Furthermore, it is expected that international students might also be attracted to the program with guaranteed transfer in place. Currently, the one year certificate offered by NLC does not meet the two year duration needed for international students to obtain their post-graduate work permit. As such, most international students interested in engineering take the Associate of Science degree.

2.0 The Common Core Curriculum

2.1 Course Development

As with other sending institutions, NLC is developing gap courses from the common first year, Engineering I and Engineering II. This project has been delayed due to issues hiring a qualified curriculum developer, but we are on track to complete shortly. It is expected that a change to the program completion guide will go through our Education Council in June. It is anticipated that we will have permission to make late changes to the program completion guide for implementation in September 2020 as the benefit to students of enhanced transfer outweighs the cost of such a late change.

2.2 Challenges

One major challenge that NLC is experiencing as a small institution located as close to Alberta institutions as most BC institutions that grant Engineering degrees is attempting to provide a meaningful pathway for students within and across the Provincial border. In recent discussions, it has come to light that NLC will need to offer an additional specialized engineering course in order to satisfy out of province transfer agreements. This means splitting a small cohort into two slightly different pathways. This is expensive and strains our already limited faculty resources.

That said, NLC is very thankful to be part of this development and very appreciative of all the work that has gone in to developing the common first year and securing funds for development. In a perfect world, we would start working on a cross province agreement.

BCCAT Engineering Articulation Committee Meeting
April 30, 2020
Okanagan College's Institutional Report

Okanagan College

Background

Okanagan College has four campuses: Kelowna, Penticton, Vernon, and Salmon Arm. Kelowna is our largest campus, making up ~65% of Arts & Science students. The majority (95%) of the Engineering programs are on the Kelowna campus.

Enrollment Numbers/Trends

Engineering Technology Programing

Okanagan College has six technology programs: Civil Engineering Technology (CIEN), Electronics Engineering Technology (ELEN), Mechanical Engineering Technology (MECH), Network Telecom Engineering Technology (NTEN), Water Engineering Technology (WET), and the Sustainable Construction Management Technology (SCMT). The capacities and current enrollments in each two-year program are summarized in Table 1 below.

Table 1: Technology Programs capacities and actual enrollments at Okanagan College

		Actual Enrollments	
		Fall 2019 start	**Fall 2018 start**
	Capacity	**Year 1**	**Year 1**
MECH	38	38	32
ELEN	36	26	20
WET	34	24	32
CIEN	40	36	36
NTEN	36	24	22
SCMT	40	11	13

The success rate of the Technology programs is approximately 75%.

Applied Science (Engineering Program)

Okanagan College currently has a one year Applied Science (Engineering Program) that some potential engineering students take. Our engineering-bound students currently take a modified first-year Applied Science load, which is missing a couple of key engineering courses. This winter, we had twelve (12) students in the program. Last year there were six (6) students in the program, which has a success rate of about 80%. Once they complete their first year at Okanagan College,

they can enter second year at the University of British Columbia's Okanagan or Vancouver campuses.

Engineering Bridging programs (Technologies to Degree)

Students that have completed some of the Technology programs at Okanagan College can take the Engineering Bridging program and transfer to the University of British Columbia Okanagan Campus. The bridging programs are currently offered for the Civil, Mechanical and Electrical Engineering Technology graduate students. Once they complete their Technology Diploma and the Bridging program, which is one semester of four to six classes, they enter half-way through (into winter semester) the second year in their respective Engineering degree programs. There were 19 students in the Engineering Bridging programs in the fall 2019 that have gone on to the second year, winter semester at UBC-O in January 2020. We currently have 21 students that have applied to the fall 2020 Engineering Bridging programs to UBCO.

Table 2 – The number of students in the three engineering Bridging programs

Year	Number of Students in the ELEN to UBCO bridging program	Number of Students in the CiEn to UBCO bridging program	Number of Students in the MECH to UBCO bridging program
2019	5	9	5
2018	2	4	5

The success rate of the Okanagan College of UBCO bridging programs is over 95%.

Common First-Year Engineering Certificate Program

The Common First-Year Engineering Certificate program has been recently approved by the Board at Okanagan College and will be implemented in fall 2020. We anticipate a cohort of about 10 students this fall with a maximum capacity of 20 students. These students will be the ones that would have taken the Applied Science (Engineering Program) and the Engineering Bridging programs at Okanagan College, as well as some new students.

The Common First Year Engineering Certificate program at Okanagan College has been approved for transfer to UBCO. We are currently working on a Memorandum of Understanding (MOU) agreement with UBCO. Once the MOU agreement is in place, we will work with other BC Universities to ensure a smooth transfer for our students to the receiving institutions.

We are currently working on which textbooks to use for the program. Currently, there are no **open textbooks** that will be used for the program. We have a couple of textbooks that we

recently purchased for the students as digital class sets that are available free to the students from our library.

Community Connections/Collaborations

At Okanagan College, we pride ourselves on Community Connections and collaborations! We work closely with the community including the following:

- Participating in volunteer opportunities – clean the creek, food drives, etc.
- Having guest speakers in the classrooms – numerous
- Field trips to community organizations and businesses – frequent
- Program Advisory Committees that have influential local industry leaders
- Bursaries provided to our students by community organizations and individuals
- Community leaders that provide funding for building construction on campus
- Instructors that provide their expertise on boards and committees for non-profits and organizations/businesses throughout the Okanagan in addition to provincially
- Collaboration and partnership with our indigenous community offering assistance and reserved seating for student to encourage a successful transition to post-secondary
- Exchange programs with institutions all over the world
- Multiple campuses throughout the region
- Co-operative education opportunities in the local and BC/Alberta communities for our students after just eight months of schooling
- Instructors that currently complete engineering work in the local and provincial community
- Organizing and facilitating regional and provincial competitions on campus including Spaghetti Bridge, RoboCup, Math Competitions, etc.

We strive to stay well connected with our community.

In conclusion, Okanagan College is doing very well during these difficult times, the Coronavirus pandemic. We are not only changing and adapting, but we are growing with our new Common First Year Engineering Certificate program which will start in September 2020. Overall, life is great at Okanagan College! (PS – we always have some instructor openings in our programs due to retirees, so check out our careers listing on our website if you want to come to the beautiful Okanagan College in the glorious Okanagan Valley)

Sincerely,
Ken Langedyk, P.Eng., M.Eng.

Selkirk College

School of University Arts and Sciences

File Note Memo

To: Brian Dick, Eng.L.

From: Elroy Switlishoff, P.Eng., Engineering Instructor, Selkirk College

Date: 27 April 2020

Subject: Annual Report and Issues List from Selkirk College for Engineering Articulation Meeting

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1. Introduction

2019-2020 enrollment in the Selkirk College one-year engineering bridge program in September 2019 was a full cohort of 24 students. It looks like there will be 19 students completing the first-year program, and eligible to transfer into second year at receiving institutions.. There are 24 ñacceptedòor ñconditionally acceptedò applications for September 2020.

The institutional response to COVID-19 emergency interfered with keeping current with the studentsô transfer plans.

The regular engineering instructor (me) was on a one-year leave of absence, which necessitated the use of temporary instructors to deliver the engineering curriculum.

2. Annual Summary

The notables of the 2019-2020 academic year are:

1. Started the academic year with a full cohort of 24 students. The demographic was skewed in that all students were male, and the majority were last yearsô high school graduates.
2. Three students did not continue into the second semester, and of the 21 continuing students, 19 successfully completed the second semester curriculum.
3. Continued with the ñbulk ï buyòstudent enrollment with Engineers and Geoscientists BC (EGBC)
4. Working on closer alignment of first year curriculum with both UBCO and the proposed common core.

The Program Advisory Committee (PAC) did not meet in the academic year because of the absence of the regular engineering instructor on a one-year leave of absence for an industrial technical assignment. The absence required hiring temporary instructors to deliver the engineering curriculum. The West Kootenay branch executive of the Engineers and Geoscientists BC were very helpful in contacting interested individuals.

Selkirk College continued a ñbulk-buyòstudent enrollment program with the Engineers and Geoscientists BC, which gives students access to scholarships, mentors, and discounted participation in Engineers and Geoscientists BC events.

As with prior years, there is continued good participation and visibility with the West Kootenay Branch of the Engineers and Geoscientists BC. Some students have been participating in branch functions and field trips, and branch members have been helpful in presenting seminars in their respective fields of practice.

Selkirk College continues to host high-school workshop days. These workshop days host one or two regional high schoolsô Grade 10, 11, and 12 students to come in, and engage with instructors in the various programs Selkirk College offers.

Selkirk College is continuing to offer a formal Co-op course in Engineering after the first year program. Local employer uptake has been very successful with student placements at Mercer Celgar (pulp mill), the City of Nelson, and local consulting firms. The co-op program has been running for 14 years, and several employers have gone on to offer permanent positions to past co-op students upon graduation.

The Engineering Graphics course (APSC 100) was using AutoCAD 2018. AutoCAD 2018 is overkill for the content of APSC 100, but the PAC has stated strongly that the students should continue to have some curriculum in first year delivered using AutoCAD because it makes them much more useful during the co-op terms. Plans to significantly overhaul APSC 100 began with a proposal to the Selkirk College Educational Oversight Committee. It was well received and curriculum development will proceed during the upcoming academic year to bring the course into alignment with ENGR II of the common core first year curriculum.

3. Issues

Selkirk Collegeôs ñIntroduction to Engineeringò course (APSC 120) still does not have BCCAT transferability to similar courses at UBC, UVic, UBCO at UNBC. The APSC 120 curriculum is being revised to align with both UBCOôs APSC 169 and ENGR1 of the proposed common core first year curriculum.

Selkirk College has a formal ñblock transferò program with UBC and UBCO that allows first year students entry into second year engineering programs at both institutions without having to have a course-by-course matching articulation. A similar agreement with UVic is ñsignature readyò but there are a couple of gaps that require transferring Selkirk College students to complete a couple of extra courses at UVic somewhere along their programs.

4. Transfers

It was not possible to canvas the student cohort for their proposed transfer plans because of the COVID-19 emergency response and the regular instructorôs leave of absence. Anecdotally, many students were planning to transfer to UBC-O or UBC-V.

SFU SIMON FRASER UNIVERSITY
ENGAGING THE WORLD

Simon Fraser University
Faculty of Applied Sciences - Dean's Office
Applied Science Building
8888 University Drive
Burnaby BC V5A 1S6
Canada

April 30, 2020
BCCAT Engineering Articulation Meeting
Faculty of Applied Sciences
Simon Fraser University

School of Engineering Science (ENSC)
School of Mechatronic Systems Engineering (MSE)
School of Sustainable Energy Engineering (SEE)

Simon Fraser University (SFU) has three engineering schools: the School of Engineering Science (Biomedical, Electronics, Computer, Systems, and Engineering Physics options) at the Burnaby campus, the School of Mechatronic Systems Engineering at the Surrey campus, and the new School of Sustainable Energy Engineering program at the Surrey campus.

School of Sustainable Energy Engineering

During September 2019, SFU launched the new School of Sustainable Energy Engineering. The inaugural SEE class welcomed 51 students. More than 40 per cent of SEE's first undergraduate cohort are female students. The program will eventually have capacity for up to 320 undergraduate and 120 graduate students.

When classes began this fall, SEE students were the first to occupy a brand new five storey, 15,000 square-metre building adjacent to SFU's existing campus in Surrey's Central City complex.

Welcoming the students is a team of eight faculty members. More teaching and research faculty are expected to join SEE throughout the coming year.

As the program develops closer relationships with local institutions, they are open to discuss potential transfer agreements and admissions. SEE's transfer requirements will expand to include SFU's CHEM 122/126 to satisfy the Chemistry course requirement.

New Admission Models at SFU

Beginning in Fall 2019, SFU changed how we evaluate admission for BC high school applicants. The goal is to identify high school students who demonstrate the potential to be successful in their program of choice at SFU. The new admission process values and considers all approved courses completed by a student in grade 11 and grade 12. The previous admission model evaluated admission offers on four required grade 12 classes.

The School of Sustainable Energy Engineering is the first School in the Faculty of Applied Sciences to require all prospective applicants (high school and college/university transfer students) to submit a supplemental application. The supplemental application allows students to demonstrate their interest and aptitude for studying sustainable energy engineering beyond their academic grades. Please note that Engineering Science and Mechatronic Systems Engineering do not require a supplemental application at this time.

SFU SIMON FRASER UNIVERSITY
ENGAGING THE WORLD

Simon Fraser University
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Canada

Intake Numbers

The following table shows the number of new external students enrolled into ENSC/MSE/SEE in the 2019/20 Fiscal Year (Summer-Spring).

	ENSC	MSE	SEE*	ENSC + MSE + SEE
Domestic	104	60	31	195
International	36	22	4	62
Total	140	82	35	257

*Including internal SFU transfers, SEE accepted 51 students in total during the 2019/20 Fiscal Year (45 domestic and 6 international)

Success Rates

The following table shows what percentage of students are on academic probation compared to students in good academic standing after their second term at SFU. These students entered ENSC/MSE in the 2018/19 Fiscal Year (Summer-Spring semesters). SEE success rates will be available after the end of the Spring 2020 term (the second term of the program).

	ENSC		MSE		ENSC + MSE	
	BC Transfer	BC High School	BC Transfer	BC High School	BC Transfer	BC High School
Good Academic Standing after Term 2	85%	75%	89%	84%	86%	77%
Academic Probation or Required to Withdraw after Term 2	15%	25%	11%	16%	14%	23%

Transfer Agreements Updates

- The School of Mechatronic Systems Engineering and Douglas College established a new agreement by extending the current School of Engineering Science agreement. MSE is also exploring an agreement with Kwantlen Polytechnic University.
- The School of Sustainable Energy Engineering is exploring an agreement with Douglas College and Kwantlen Polytechnic University.

TRU Engineering Transfer and Software Engineering Program Articulation Report

Spring 2020

Engineering Transfer program – Year 1 & 2

Intake: 60 students

Number of Applicants: 97

Software Engineering Program:

Intake: 30 students

Registered Students in Program (Year 1, 2, & 3): 43

Engineering Expansion Update: The Bachelor of Engineering in Electrical and Computer Engineering have went through with DQAB for review and approval, waiting to hear back final decision from Ministry.

Faculty Hiring: The Department is seeking 2 new faculty members to start from August 01, 2020 to support the Software Engineering program.

First Year Common Curriculum: Signed off both as transferring and receiving institution, the curriculum changes have been approved by the TRU Senate approval processes and ready to implement the new curriculum from Fall 2020 except Physics I and II will delay its implementation till Fall 2021 as the Physics department needs more time to prepare and deliver the updated Physics courses.

Final Exam and Online Delivery: A part of the Winter semester due to pandemic situation was offered through alternate delivery mode, and all exams were conducted online and open book.

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Pre-Engineering at Trinity Western University

Report for the BC Articulation Committee Meeting
April 2020

Coordinator:

- Dr. Herbert H. Tsang, P.Eng., Professor of Computing Science & Mathematics

Our engineering transfer options are administered by the above member of TWU's Department of Mathematical Sciences. At TWU, we offer B.Sc. majors, concentrations, and minors in Mathematics, Mathematics with Computing Science, Computing Science, as well as a concentration and minor in Physics.

We provided our pre-engineering students with suggested schedule options and the competitive nature of the transfer. The options for our students are:

- take a pre-engineering year of some science courses (calculus, physics, chemistry, and computing science) plus English and humanities electives and apply into another university's engineering program.
- spend two years at TWU, by adding linear algebra, computing science, physical chemistry (thermodynamics) before applying to transfer into the second year of an engineering program.

Our information is posted at http://www.twu.ca/academics/faculty-natural-applied-sciences/pre-engineering .

In fall 2019, we had about ten first-year students expressed an interest in engineering transfer. In addition, in October we worked with the Fraser Valley Branch of the Engineers and Geoscientists BC to hold our annual engineering night. In "Engineers and Geoscientists Evening," we have invited five different types of engineers to come and present their work. This event was very successful and with over fifty students attended.

In the 2019-20 academic year, we have created the ReBoot Camp. ReBoot Camp is a series of computing-related workshops for people of all ages. Specifically, the Robotics 101 class is an exciting course that teaches Grade 6 – 9 students working with a robot.

We have a transfer agreement with the University of Victoria since March 2019. In spring 2020, we have our first student applying to transfer to UVic and currently waiting to hear the results. We anticipate more student will consider UVic for their future engineering education. As usual, we have some students switched to another major in TWU (for reasons of interest or ability).

a place of mind
THE UNIVERSITY OF BRITISH COLUMBIA

The University of British Columbia
Faculty of Applied Science
School of Engineering
Okanagan Campus
1137 Alumni Avenue
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Phone 250 807 8723
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UBC-Okanagan – School of Engineering
Receiving Institution Report
April 30, 2020

Facts and Figures

	Receiving Students
Direct Entry – 1st year Applications	1870*
Direct Entry – 1st Year Enrollment	327
Transfer – 2nd Year Applications	263
Transfer – 2nd Year Enrollment	63**

* 1st, 2nd and 3rd choices included in this number
** 97 were approved, 63 accepted the offer

Block Transfer Programs:

Eight post-secondary institutions around British Columbia offer transfer of first-year engineering course credits to UBCO. Students who successfully complete one of the following programs within one year (September to April) with a GPA of at least 2.8 are guaranteed admission into second-year the UBC School of Engineering. Students who are registered in an Engineering Transfer Program but who do not complete their program in one year (September to April) will be evaluated as transfer applicants.

	Sending Institution	Receiving Students			
		2019W	2018W	2017W	2016W
Block Transfer Programs	Capilano	0	4	5	1
	New Caledonia	1	0	2	3
	Kwantlen	3	2	4	2
	Langara	0	0	2	3
	Selkirk	2	7	5	2
	Thompson Rivers	7	3	10	5
	Fraser Valley	4	1	2	3
	Vancouver Island	3	2	0	1

Bridge Programs

In general, few courses that are part of a technology diploma program are transferable to the School of Engineering, and there is a limit of no more than 30 transfer credits to the Okanagan campus of UBC from a technology diploma program. However, students who hold a technology diploma may consider applying to UBC through one of the established Bridge Programs.

	Sending Institution	2019W	2018W	2017W	2016W
Bridge Programs	Okanagan College	21	12	8	10
	Camosun College	17	14	10	6

University and College Transfers:

The UBC School of Engineering accepts students transferring from another UBC Faculty and other institutions. Admittance depends on the average of the last 30 credits of university-transferable courses that he or she has taken and on the average of the mathematics, chemistry and physics courses.

Students will be admitted into second-year engineering if they had successfully completed or has transfer credits for at least 27 credits of our first-year program. Students not meeting this criterion would be admitted into the first-year program.

	Sending Institution	2019W	2018W	2017W	2016W
Other Year 2 Transfers	College of Rockies	3	2	1	0
	Douglas	0	1	1	1
	Red Deer College	3	2	0	1
	Trinity Western	0	1	1	3
	UNBC	1	0	1	1
	Vancouver Community	0	1	3	0
	SFU	2	-	-	-
	Other	14	4	5	-

TOTAL Transfer Students	2019W	2018W	2017W	2016W
	81	56	60	43

News and Initiatives

1. MANUFACTURING ENGINEERING PROGRAM: The first dual campus (UBCV and UBCO) cohort of the Manufacturing Engineering (MANU and MANF respectively) Program began 2nd year in the fall of 2019. This program uses the common first year program at both campuses. Some courses will be co-taught using video-link. The two programs are equivalent, but not identical.
   - UBCV curriculum is co-developed between Materials, Mechanical, and Computer Engineering. September 2019 saw 22 registered students, the intake target for September 2020 is 40 students.
   - UBCO curriculum is developed in collaboration with the existing the School of Engineering programs and Computer Science. September 2019 saw 12 registered students, the intake target for September 2020 is 40 students.

2. CIVIL ENGINEERING OPTION (*new*):
   - **Resilient Infrastructure Management (RIM):** 2020W will be open to 3rd & 4th year students.

3. MECHANICAL AND ELECTRICAL OPTIONS (*new*):
   - **Biomedical Engineering:** 2020W will be open to 2nd and 3rd year students.
   - **Mechatronics:** 2019W saw 30 students enrolled – 2020W will be open to 2nd and 3rd year students.

4. COVID-19: UBC went to all online teaching on March 16, 2020 and will continued to do so throughout both 2020 summer terms. Further, we approved that students in direct entry undergraduate programs could elect to convert their %-grade course results to Credit/D/Fail or alternately take a late Withdrawal (W). Students will have the ability to do this after their final grades are published.

BCCAT Engineering Articulation Meeting (virtual) – April 30, 2020

UBC-Vancouver Receiving Institution Report

April 7, 2020

Part 1: Facts and Figures

1. Total number of students enrolled in direct entry 1st year program:
    - 988 (2019W - 698 domestic, 290 international)
    - 881 (2018W – 610 domestic, 271 international)
2. Total number of applications received for first year direct entry:
    - 6402 (2020W – 3017 domestic, 3385 international)
    - 6269 (2019W – 2813 domestic, 3456 international)
3. Total number of students admitted to year 2:
    - 201 (2019W – 79 via an engineering transfer program agreement, 122 from other sources)
    - 207 (2018W – 106 via an engineering transfer program agreement, 101 from other sources)
4. Engineering transfer students admitted from the following institutions with the following distribution:
    - 2019W (CAP – 24; KWAN - 10; LANG – 18; SELK – 3; TRU – 11; UFV – 2; VIU – 11)
    - 2018W (CAP – 23; CNC – 4; KWAN – 17; LANG – 33; SELK – 3; TRU – 17; UFV – 5; VIU – 4)
5. Total number of applications received for year 2 entry/transfer:
    - 476 (2020W)
    - 514 (2019W)

Part 2: News and Initiatives

1. **Biomedical Engineering.** The second offering of the 2nd year program and the first offering of the 3rd year program in the Biomedical Engineering Program are just wrapping up. Transfer students are welcome to apply for placement in the BMEG program, though additional courses may be required to complete the program.

   Manufacturing Engineering. The first dual campus cohort of the Manufacturing Engineering (MANU) Program began 2nd year in the fall of 2019. This program uses the common first year program at UBCV, and the common first year program at UBCO. Some courses will be co-taught using video-link. The two programs are equivalent, but not identical. The curriculum for MANU is co-developed between Materials, Mechanical, and Computer Engineering. September 2019 saw 22 registered students, The intake target for September 2020 is 40 students.

2. **Environmental Engineering.** The Vancouver-only Environmental Engineering program has been approved by the Ministry and will take its first 2nd year cohort in September 2020. The program will use the standard UBCV first year curriculum. The September 2020 intake target is 20 students.

3. ***Admission GPA***. Current GPA requirement for the Engineering Transfer programs is 3.1. Interim GPAs of 3.3 are being offered admission, with 33 admits as of March 28. Every effort will be made to take into account the COVID-19 related modifications to transcripts (e.g. Pass/Fail grading systems in place of % or letter grades).

4. **COVID-19.** UBC went to all online teaching on March 16, 2020. Further, we approved that students in direct entry undergraduate programs could elect to convert their %-grade course results to Credit/D/Fail or

alternately take a late Withdrawal (W). Students will have the ability to do this after their final grades are published. Second year placement will still happen based primarily on student grades (those remaining as % grades) and the personal profile statement (which will be expanded in length to allow student to write about their top 2 program choices and to be able to elaborate on any COVID related circumstances that they feel impacted their studies). Full details of any adjustments to the placement process are still under review, but the high level principles remain the same.

UFV Engineering Transfer Articulation Report

April, 2020

The 2019/2020 year has not been spectacular. We have had our lowest enrollment in more than a decade. Both the Drafting and the Statics and Dynamics classes which normally start with almost 40 and a wait list both started below the official maximum of 36 and both had significant drops outs, finishing at around two dozen. The Introduction to Engineering class which often has 60 had about half that.

The quality of the students seems to be the same as usual, neither stronger or weaker than normal. Those that transfer will probably perform as well as others who have transferred in the past. I expect 12 to 16 students will attempt to transfer with about two thirds choosing UVic as their primary destination and the remainder trying to get to UBC.

Efforts to address some of the issues with "unpopular" classes were derailed by the current shut-down.

Course outlines for the new courses matching the new curriculum are ready, but keep getting pushed back and did not meet the December deadline for September 2020 approval. Again, the recent events seem to have pushed the approval process even later.

We are currently under orders to make provisions for purely on-line versions of our courses in the Fall either in case we are to start that way or if we have to transition to on-line during the term. UFV students are required to submit weekly feedback documents on how they are doing, and two comments are clear: they hate on-line classes; and they are not learning as much in an on-line format as they do in a lecture format.

Our applications for our 2020/2021 year are up compared to last year, but how this will translate to actual enrollments is still to be seen.

Answer to question: UFV is not currently using Open Stax, but Chemistry has gone to an electronic textbook.

Question to people on the committee: how do you intend to handle the lab requirements in the future if we are forced to do on-line courses in the coming academic year?

Peter Mulhern

April 2020

UNBC Engineering Articulation Report

UNBC Engineering enrolment trends

Year	New 1st year students	Transfer students	Total new enrolments
2015/16	24	15	39
2016/17	33	15	48
2017/18	37	7	44
2018/19	26	14	40
2019/20	43	11	54

Transfers to UNBC Engineering for 2019/2020

Province	Prev. Institution	Total
BC	Douglas College	1
BC	British Columbia Inst of Tech	1
BC	University of British Columbia	2
BC	Simon Fraser University	1
BC	Univ British Columbia-Okanagan	1
BC	Kwantlen Polytechnic Univ	1
BC	Thompson Rivers University	1
BC	Univ of the Fraser Valley	1
AB	Southern Alberta Inst of Tech	1
ON	University of Guelph	1
NS	Dalhousie University	1
International	Pontifical Cath Univ of Peru	1
International	Bengbu University	1

Program changes: UNBC is in the final stages of an academic restructuring initiative

- Engineering programs are moving from the College of Science and Management to the College of Science and Engineering (this move is delayed temporarily due to COVID-19)
    - This will allow for better integration and communication with the Math, Physics and Computer Science Programs
    - Engineering Programs will be under an Associate Dean of Engineering
- UNBC is in the process of hiring Senior Lab Instructors and Faculty members to support the new engineering programs
- New lab facilities have been completed for 2nd year labs
- A new design studio classroom and student design lounge were completed summer 2019

Program changes, continued: UNBC now has 3 Engineering Programs

- UNBC/UBC Joint Environmental Engineering
  - Curriculum changes to 1st and 2nd year to take advantage of new engineering resources at UNBC
    - New Mechanics of Materials course (ENGR 130) in 1st year
    - Linear Algebra moved to 1st year (elective moved to 2nd year)
    - New Fluid Mechanics lab in 2nd year
    - New communication course in 2nd year
    - New Engineering Biology course in 2nd year
- UNBC Environmental Engineering
  - 1st year complete
  - 2nd year to start Fall 2020
- UNBC Civil Engineering
  - 1st year complete
  - 2nd year to start Fall 2020

UNBC 1st year Engineering

Environmental Engineering		**Civil Engineering**		**CFYEC**
CHEM 100-3	General Chemistry I	CHEM 100-3	General Chemistry I	CHEM I*
CHEM 120-1	General Chemistry Laboratory I	CHEM 120-1	General Chemistry Laboratory I	
CHEM 101-3	General Chemistry II			Note 1
CHEM 121-1	General Chemistry Laboratory II			
CPSC 110-3	Introduction to Computer Science and Programming	CPSC 110-3	Introduction to Computer Science and Programming	CSCI I
ENGR 110-3	Technical Writing	ENGR 110-3	Technical Writing	ENGL II
ENGR 117-3	Engineering Design I	ENGR 117-3	Engineering Design I	ENGR I ENGR II
ENGR 151-1	Engineering Tools I	ENGR 151-1	Engineering Tools I	
ENGR 152-1	Engineering Tools II	ENGR 152-1	Engineering Tools II	
MATH 100-3	Calculus I	MATH 100-3	Calculus I	CALC 1
MATH 101-3	Calculus II	MATH 101-3	Calculus II	CALC II
MATH 220-3	Linear Algebra	MATH 220-3	Linear Algebra	LALG I
PHYS 110-4	Introductory Physics I: Mechanics	PHYS 110-4	Introductory Physics I: Mechanics	PHYS I
		PHYS 111-4	Introductory Physics II: Waves and Electricity	PHYS II
ENGR 130-4	Mechanics of Materials I	ENGR 130-4	Mechanics of Materials I	PHYS III

Note 1: Students transferring into the environmental engineering program can use PHYS II to waive the requirement for CHEM 101 General Chemistry II / CHEM 121 General Chemistry Laboratory II (CHEM 101/121 are prerequisites for some elective courses)

COVID Response: UNBC went to online teaching on March 18th. Students have the choice of converting letter grades to PASS/FAIL (or can withdraw).

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BCCAT Engineering Articulation Meeting – April 30, 2020

UVIC – Receiving Institution Report

Transfer Admissions Data:

	2019	2018	2017	2016
International (Overseas) Institutions	1		3	
US institutions		1	3	
Alexander College		1		
BCIT				
Camosun College	17	23	15	32
Capilano University	2	2	1	0
College of New Caledonia	1	5	5	2
College of the Rockies	3	3	2	2
Columbia College		2		
Coquitlam College		1		
Other Canadian Universities (non-BC)	5	5	7	7
Douglas College	6	10	2	0
Kwantlen Polytechnic	2	2	6	6
Langara College	1	2	4	3
North Island College/Dual admit	8	9	3	4
North West Community College		1		
Northern Lights College	1			
Okanagan College	1	3	2	
Pathways	4	3	1	5
SAIT		1		
Selkirk College	2	1		1
Simon Fraser University (BC)		1	1	1
Thompson Rivers University	9	7	17	7
UNBC (BC)	1	1	1	
UBC (BC)		3		
UBCO			1	2
University of Fraser Valley	9	7	7	14
Vancouver Community College		2		
Vancouver Island University	9	19	19	8
Other UVic faculty/program transfers	50	40	54	67
Total	**132**	**155**	**154**	**161**

News:

- The Faculty is putting on our full Summer term courses! (So, we will be experts, come fall! But in the meantime, we are working full out.)
- We are on track to meet funded seat expansion expectations. (If we can maintain the steady state into the fall, through this summer of pandemic.)
- Our fall admission numbers are slightly up from last year, but the confirmations slow.

Questions:

- Is there anything we all can do to collaborate, going into fall planning, in light of the pandemic? Ideas may include sharing of recorded course materials or lab demos?

Vancouver Community College Institutional Report

BCCAT Engineering Articulation Committee Meeting
30 April 2020, held via ZOOM
Prepared by Costa Karavas (ckaravs@vcc.ca)

A. Program Success/Learning Opportunities

a. **Student enrolment numbers / trends**
In Sept-Dec 2019 there were 20 students registered and in January-April 2020 there were 32 students registered.

b. **Student success / profile**
Many first-year students decide to enter the Engineering program after they have already completed some 1st year courses.

c. **Sending institutions: Known (or anticipated) transfer paths.**
Vancouver Community College offers a First-Year University Transfer Engineering program. Students gain transfer credits towards the second year:

- SFU Engineering science degree programs via assured or competitive admission. Must be completed within sixteen months for assured admission and within three years. for competitive admission. Successful completion of a minimum of 36 credits of university transfer articulated first year courses is required for completion of the certificate. All courses must be completed at VCC.
- University Transfer – Engineering (UBC) via competitive admission. Successful completion of a minimum of 37 credits of university transfer articulated first year courses is required for completion of the certificate.

d. **Receiving institution: Policy changes (e.g. GPA adjustments, Transfer data, Curriculum changes etc…)**
VCC is a sending institution.

e. **Program changes / innovations / challenges**
In agreement with the First Year Common Core Engineering Curriculum, two existing courses are added to VCC's University Transfer – Engineering (UBC) Certificate:
SCIE 1100-Engineering Technology and Society and SCIE 1110-Professional Communication.
-Students can access MATLAB software via the internet through virtualization licenses.

f. **Community connections and/or collaborations**
Students share project work, ideas, prototypes, and demonstrations at VCC Engineering Fair. Can also share with broader Engineering community.

B. Open-Text book Query:

a. **How widely adapted are open-text books in the first-year engineering curriculum (all subject areas)?**
In communication with Jennifer Kirkey (Douglas College) to provide feedback / comments / input / etc.

b. **What open-text books are currently being used?**
Currently no open-text books are used.

c. **What challenges present to adopt (if not adopting)?**
The challenge would be having a comprehensive reference textbook that has gone through detailed review by peers. There are not that many of such books around, but this concept is gaining more momentum. VCC would be open to adapting such a reference book when available. Another difficulty will be replacing reference textbooks that have been around for a long time (decades). Many times, course syllabi have been customized to follow the course plan from those books (e.g. Hibbeler's Engineering Mechanics series in many schools). Switching to other books will require some effort.

Vancouver Island University

report to the

Engineering Articulation Meeting (30-Apr/20)

1. Applications to the Engineering Transfer Diploma (the pathway into the both the Engineering Transfer Certificate and Diploma) is up slightly for 2020/21 – 82 (in 2020) vs 80 (in 2019), with a further five applications for the Integrated Engineering Technologist Diploma. The conversion rate was soft for 2019/20, which we had hoped (which was more realistic a month or so ago) to improve this coming year .

2. Student FTEs – Numbers continue to show weakness. Revised institutional marketing is under way, although has been impacted by the recent pandemic. Attrition between Fall and Spring this year was considerably (close to 50%), mostly due to weakness in Math (and, often Physics). Attendance has also been more sporadic, and, unusually for the design courses, some students have dropped the course mid-term. Using the design course as a proxy for enrolment, 33 students (up from 29 in 2018) were registered in the program as of mid-September (including Certificate students and transfer path students) while 18 were enrolled mid-March (down from 25 in 2019). We were hoping to bend this curve in 2020/21, but that may prove difficult given the current situation.

3. Transfer agreements - Work to implement an agreement with UofA and UNBC is on-going. The latter will likely fall under the common curriculum agreement, to which VIU is a signatory. SFU-B will require updating, but there have been limited discussions thus far.

4. Name changes – Fundamentals of Engineering Certificate changed to Engineering Transfer Certificate.

5. New programs – Engineering Transfer Diploma launched (allows students to take twenty transferrable courses to, primarily UVic); Integrated Engineering Technologist Diploma (allows students to exit after a further three terms of practical study after completing a common, first-year. ENGR I/II have been moved to the new Design Studio space, and various machining/fabrication equipment has been acquired to support the interdisciplinary ‘makerspace’ attached to the department. CAD studio (seating for 16) has also been built and is ready for use in the Fall.

6. New courses for 2020/21 – At the moment, two CAD courses (AutoCAD and SolidWorks) will be offered next year, as well as a revised Engineering Mechanics course that includes a lab component. In-person vs remote instruction may impact these offerings, as will potential funding shortfalls. ENGE 250 (Linear Circuits) will be offered for a second year.

7. Hires – One full-time, new technician has been added to the Engineering/Technology program, and interviews are taking place for a further two full-time instructor positions (civil & mechanical focus) to support the Integrated Engineering Technologist Diploma. A further hire will take place in 20/21.

8. Common Curriculum – Design courses (ENGR 112/121) had minor changes to meet the requirements of the first-year engineering common curriculum.

9. A new Dean will be starting on 01.Jun; it is hoped that she will continue to support the growth of engineering/technology at VIU.

COVID Specific Response:

Much of what has been said above has been impacted by COVID-19, as it likely has at all other PSIs in the province (and elsewhere). What initial plans we may have had, have been considerably disrupted and there lies quite a bit of uncertainty for the 2020/21 academic year.

At VIU, students this term were given the option of:

- Withdrawing from courses by the last day of class (Thursday, 09-Apr) with a 50% refund (or 100% if they indicated VIU was not able to accommodate documented need).
- Keeping the grade they receiving in a course, or decide, by end of August, whether to keep the grade or convert it to a CR (credit for course, but not calculated in their GPAs. This CR will be deemed as sufficient for pre-requisite for any subsequent course they need. The CR option is only applicable for the Spring-2020 term at the moment.

Further, students on probation will be given an additional one year to complete their requirements, and INC grades will not convert to an 'F' for 180 days (up from 90 currently).

My advice to students, to ensure clarity on transfer, is to keep the grades received. It may create issues for entry into 2nd year at the transfer partners if they have the CR - but that advice may change as messaging crystallizes.

It is expected that we will be using remote instruction for the Fall term, with the hope that we are back in-person by Spring. Adaption of lab/project/team work to a remote instruction environment is being undertaken, such that this work may be applied as additive to an in-person experience as much as possible.

Concerns exist over enrolment into the Fall (both first-year and continuing, and particularly international students). Applications, up prior to COVID, are now down relative to last year. International applications are way down. And it is uncertain whether students who have applied will show up – it is thought that some may consider a "gap" year due to the uncertainty, do not wish to start their studies in a remote learning environment, or simply do not have the funds given the lack of summer employment.