

Engineering Articulation Meeting
Thursday April 30 2009
Panorama Room, TRU International Building
Thompson Rivers University, Kamloops
Co-Chairs Tom McMath Kwantlen Polytechnic U, Peter Mulhern U Fraser Valley

Minutes

General Business

Next year's Engineering Articulation Meeting is tentatively scheduled for May 6, 2010 at the University of the Fraser Valley. The 2011 meeting is tentatively scheduled for UBC-Okanagan.

[Note added: Change of venue for next year's meeting: For the past few years we have tied the Engineering and Physics Articulation meetings together, since many of the colleges send the same representative to both meetings. We tentatively booked UFV for next year's meeting; however on the following day the Physics Articulation meeting opted to go for Langara as the meeting site, on the grounds of an offer made the previous year. The representatives who would do both meetings felt that two venues would present problems. Subsequently, Langara agreed to host both meetings, and UFV agreed to defer their offer to a later time. In an email poll of delegates, no one voted against this change; so the next Engineering Articulation will be at Langara College, on Thursday May 6 2010.

Tom McMath]

1. APEGBC Report

APEG is looking into licensing Forest engineering. Work is currently underway, led by UBC, to provide course equivalencies. The target for completion is the near future because there is a need for new syllabus in FEng.

How will this program interact with UBC's Wood Products Processing? The WPP program is being adapted to what currently in F.Eng syllabus. New experience guidelines in wood processing will be in F.Eng. Expect more details in the next 4-6 months. The UBC Faculty of Forestry is presently involved.

At meeting: UBC Engineering asked to be involved as well.

UBC-UNBC Environmental engineering is presently not of concern with respect to meeting P.Eng accreditation requirements because most of the Engineering courses are taught at UBC.

CEAB is cautious in accepting new programs. APEG is in collaboration with CEAB.

Jacques Granadino. APEGBC

2. **Admin. Liason Officer Report.** Brian Carr not able to attend and so there was no report.

3. Institutional Reports

a) Camosun

Camosun College offers three (3) technology-access programs, four (4) technology programs, and seven (7) engineering-bridge programs. There are also a number of technician programs.

Technology Access Programs

The technology access programs assist students in meeting the admission requirements for the technology programs.

Camosun presently offers access programs to Civil, Electronics and Mechanical Engineering Technologies.

Table 1. May Applications for the Technology Access Programs

Discipline	Seats	2009	2008	2007	2006	2005
Civil	20	25	24	22	20	26
Electronics	15	8	3	6	11	23
Mechanical	16	12	11	16	13	26

The technology access programs are normally taken by mature students returning for retraining or recent high-school graduates who do not meet the admission requirements. Recently, there has been a slight rise in interest for all the Access programs.

Technology Programs

Camosun offers civil, computer systems, electronics (this includes the computer engineering option) and mechanical engineering technologies. All technologies offer co-op as an option.

Table 2. May Applications for First-Year Technology Programs.

Discipline	Seats	2009	2008	2007	2006	2005
Civil	48	75	73	84	52	53
Computer Systems	48	35	42	68	59	53
Electronics	44	60	38	28	28	51
Mechanical	55	72	64	59	63	79

Interest has increased in all Technology programs. Civil Engineering has seen the highest demand followed closely by Mechanical Engineering.

Engineering Bridge Programs

The Engineering Bridge Programs offered by Camosun College are: Civil, Software, Mining, Electrical, Computer, and Mechanical. A recent addition is the Electrical Engineering Bridge for Mechanical Engineering Technologists. We are also preparing to add a Computer Science Bridge which will allow graduates of a Computer Systems Technology or similar program to enter 3rd year of Computer Science at UVic.

- The Civil Engineering Bridge feeds into the 3rd year at UBC Vancouver and UBC Okanagan.
- The Computer Engineering Bridge allows students to enter the 3rd year at UVic.
- The Electrical Engineering Bridge also allows students to go to 3rd year at UVic.
- The revised Software Engineering Bridge is now available. The latest version of the Software Engineering Bridge program allows students to enter the 2nd term of the 2nd year at the University of Victoria (UVic).
- The Mechanical Engineering Bridge now bridges into the 3rd year of UVic, UBC Vancouver and UBC Okanagan. UVic is a co-op mandatory program while co-op is optional at the other two institutions.

Table 3. Students in the Engineering Bridge Programs

Discipline	Seats	2009	2008	2007	2006	2005
Civil	45	25	26	28	18	N/A
Mining	10	1	1	0	1	N/A
Computer	10	7	11	7	6	8
Electrical	30	31	31	30	34	30
Mechanical	74	38	40	63	31	27
Software	10	6	1	3	4	7

In summary:

- The interest in the Civil Engineering Bridge is steady.
- There is only a little interest in Mining Engineering.
- Interest in Computer Engineering is low. However, University demand for students entering 3rd year is high.
- Interest in Electrical Engineering is steady but lower than University demand.
- Interest in Mechanical Engineering is good. However, there are many unfilled seats available at UBC Okanagan and Vancouver campuses.

- There was is more interest shown in Software Engineering bridge.

Added at the meeting: Camosun is moving to a semester system; the bridge will be two semesters.

Conclusion

We are reaching a time when we are expecting increased enrolments in the technologies. This is partially due to the economic downturn. It is also a result of our marketing efforts that included fostering partnership programs with the high schools to encourage the best students to pursue the technologies rather than follow the easy path into the trades.

Otherwise, there will be a shortage of technologists and engineers in the very near future. We currently have a several initiatives underway with UVic to promote engineering and the technologies. Some of these include a viewbook describing the engineering disciplines, a promotional video, and an informative website.

We also offer one week programs to high school students to introduce them to the engineering technologies. At that time, they work on projects from the civil, computing, electronics, and mechanical engineering fields.

Ranjan Bhattacharya BSc. MBA (*Candidate*) MCIC
Associate Dean
School of Trades and Technology
Camosun College

b) Capilano University

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

First-Year Engineering Transfer Program

This program is modeled after first year engineering at UBC. Statistics for the 2008/2009 year are as follows:

1. 167 applications were received
2. 69 admission offers were made
3. 39 students registered
4. 29 students completed the program
5. 20 students have GPAs that meet UBC's transfer criteria

This year, so far we have received 158 applications for the 2009/2010 year

Engineering Transition 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 who do not have the prerequisites to begin first year engineering. The cohort that are finishing this year began in the fall of 2007. Statistics for this group are as follows:

- c) 103 applications were received
- d) 23 admission offers were accepted
- e) 22 students completed the program
- f) 9 students have GPAs that meet UBC's transfer criteria

The cohort that began in the Fall of 2008 are finishing their first year of the program. Statistics for this group are as follows:

- 1. 113 applications were received
- 2. 39 admission offers were made
- 3. 22 students registered
- 4. 16 students are expected to return for a second year

This year, so far we have received 61 applications for the 2009/2010 year.

Other News

- 1. We are working on a seamless transfer agreement with UVic.
- 2. Our enrolment capacity for both programs this year is 40. In previous years it was 70 although typically we have had 50-60 students in the programs.
- 3. We are proposing to split our APSC 160 Engineering Design course into two courses. It is currently a 6-credit course consisting of a lecture component and a lab component that transfers to UBC APSC 150. Our proposal is to modify the course into a 3-credit lecture course and a 3-credit lab course. The lab consists of hand drafting and computer-aided (AutoCAD and SolidEdge) drafting. Students would take the lab course in the fall and the lecture course in the spring. If our proposal passes the various committees it needs to pass then we will need re-articulation with UBC and hopefully we can articulate the lab course with other institutions as well.

Margaret Dulat
Convenor of Engineering
Capilano University

c) College of New Calidonia

CNC has seen a doubling of Engineering numbers and this has led to demand for extra sections of related courses.

CNC has signed a seamless transfer agreement of 12 courses that will allow entry into UVic's second year.

CNC is planning to open a new diploma program in Medical Radiography possibly as soon as Sept 2010. Civil Engineering technology is also a possibly on the horizon and is being investigated. The latter has significant interest from local employers looking for Civil Tech skills.

Added at meeting: a suggestion CNC talk to BCIT

Margaret Dulat
Convenor of Engineering
Capilano University

d)College of the Rockies

College of the Rockies has about 5-10 students. Students there take first year science and two second year math courses as part of their transfer. A common problem for students arriving at a destination university is the missing first year engineering courses are not scheduled against the second year math courses; the net result is that it is not possible to get all the needed first and second year courses in just two years.

U of Alberta gets most of their students. But now many want to go to UBC-O. College of the Rockies wants a formal arrangement with UBC-O. There have been scheduling problems with students going to UVic and to UNBC. University of Calgary has been awful to their students. (Added in meeting: others have had problems with U of C, but U of A has been good.)

e) Douglas College

Enrollments in the Engineering Transfer courses have increased marginally, specifically the number of students registered in the APSC 1110 - Engineering Graphics with AutoCAD this fall was 18, with 16 students completing the course successfully. Previous year's enrolment was 15. The CAD part of the course is continuing to be popular among the students. AutoCAD Lt 2009 software will be used in the Fall 2009 semester.

Enrollments in the Physics 1170 - Engineering Mechanics this winter was 18. As with

previous years, the Physics Department invited a guest speaker from industry. This year our speaker was from Associated Engineering in Vancouver, who spoke about the technologies involved in renewable energy; specifically run-of-river hydro power, wind energy, bio-gas and energy recovery projects. Students completed a group project based on this presentation.

Douglas now has a seamless arrangement with SFU due to a common registration system.

Douglas College has now an engineering transfer website and I appreciate if the destination institutions could add the following link to their faculty web pages for our transfer students.

<http://www.douglas.bc.ca/calendar/programs/petp.html>

Kuros Gadareh

f) Kwantlen Polytechnic University

Our numbers held steady at the Surrey campus this year, but declined sharply at Richmond. Compounding this, many of the Richmond students did not register until the very last minute. By this time several lab sections had been cancelled, and they had to scramble to get in all their courses, resulting in some awkward timetables and in some cases inter-campus travel. Somehow this was our fault and an infringement on their rights. Both classes were strong though, and we expect the number who are eligible to transfer to be about the same as in recent years.

The Microcomputers course APSC 1299 remains a source of hard work for the students, but most were pretty happy with it in the end. The work requirements did draw some comments from other departments though. We intend to review the course outline, as the course has evolved somewhat from its original form. Changes are likely to be more in detail than in overall style or intent.

The move to a one-semester only offering of the Intro to Engineering (now APSC 1124) worked well. We were able to schedule seminars in all weeks, making use of our in-house metaskills seminars where we couldn't get an external speaker or a field trip. The sessions on working effectively in groups and on making presentations resulted in good final presentations on a design project (APSC 1124) and the robot project (APSC 1299).

We are very close to signing a formal transfer agreement with UVic, and have made considerable progress in clarifying our transfer status with SFU. Our program was originally based on UBC's, and transfer there remains strong and unchanged.

Tom McMath, Physics/Engineering Instructor

g) Langara

Overall Langara college has seen increasing enrollments for three semesters running. Virtually all students are bound for UBC.

The demand for engineering continues to be stable. We had a nearly full section of 28 students for the Engineering Mechanics (PHYS 170 equivalent) in Spring 2009. In the fall of '08, we had 24 students. As usual, we are running all the courses required for first-year engineering this summer as full-semester courses (May—Aug). The Summer section of Engineering Mechanics is nearly full at 25, and the Engineering Graphics is also nearly full, with 31 students. Some courses are available on-line.

Last fall was the first semester we ran the Engineering Mechanics in the fall. The results is that we have a nearly full course in all three semesters with no waiting lists.

Respectfully submitted,
Bradley Hughes

h) North Island College

NIC is in the process of setting up a first year transfer system. They have met with UBC and UVic. They are looking to start in Fall 2009. They will be offering engineering linear algebra MATH 133 and PHYS 141 engineering mechanics. These will be offered at the Comox Campus. NIC is hoping for a 2-3 grace period to see how enrolment pans out.

Helena Higgs

i) Okanagan College

Okanagan College has five technology programs (Mechanical Engineering Technology, Electronics Engineering Technology, Water Quality Technology, Civil Engineering Technology, Network Engineering Technology) and one computer technology program (Computer Information Systems, both a Diploma and a Degree). Enrolment is strong in Civil with a substantial waitlist, student numbers are strengthening in each of the others but they are still not full. In fact, ELEN, WQT, and NTEN are still a bit weak.

Applications for all of the Technology programs are up very nicely this year (+41% in MECH, +50% in ELEN, +89% in WQT, +6% in CIEN, +28% in CIS, and +100% in NTEN). Last year first-year students numbered 28 in MECH, 15 in ELEN, 18 in WQT, 36 in CIEN, 20 in NTEN, and 25 in CIS/BCIS. Second-year numbers were 15 in MECH, 8 in ELEN, 10 in WQT, 30 in CIEN, 10 in NTEN, and 10 in CIS/BCIS. We had 6

students in third-year and 4 students in fourth-year of the BCIS program. Based upon applications we expect CIEN to be full at 40 again, while NTEN and MECH probably will be full as well. WQT will be very healthy at about 34 and ELEN is still weak with just 22 expected. The CIS/BCIS can handle more than 40 students and is expected to have about 44. We have fewer students planning on the engineering bridge program next year.

Okanagan College does not have an Engineering transfer program any longer (since 1992). Therefore, our Engineering-bound students just take a slightly modified first year science program and as a result are very hard to track. I believe we had 2 Engineering-bound students at each of our Penticton and Vernon campuses and 4 students at our Salmon Arm campus and about 6 at Kelowna. We offered PHYS 202 (Engineering Statics and Dynamics) for the first time this winter semester at Kelowna for the Engineering students.

Our numbers overall are static this year in Science at Okanagan College compared to last year which was down a bit from the year before (~-10%). The numbers in Physics were up for the calculus-based quite significantly (~+150%) and for the algebra-based were down slightly (~-10%). The quality of the calculus-based students was fairly weak. Astronomy was up a bit this year (~+10%) whereas last year the numbers were fairly static (~+1%). We ran Astronomy in Penticton for the first time this year.

Our Physics numbers in Penticton were static, up in Salmon Arm a bit and went down quite badly in Vernon. The numbers in Astronomy were up slightly at both Kelowna and Vernon. The overall numbers in Astronomy in both Vernon and Penticton were fairly low. Attrition in first year physics was not as major a problem this year as it was two years ago. Most of the attrition still occurs in the first semester.

This year saw our third year for offering second-year courses at Okanagan College. We planned to offer the Modern Physics (OC PHYS 200), second-year Classical Mechanics (OC PHYS 228), Statics and Dynamics (OC PHYS 202), plus our two second-year labs (OC PHYS 219/229). Due to very low enrolments we had to cancel three of the five second-year courses (PHYS 228, 219, and 229). The remaining courses had low enrolments (1 to 3 students each). I do not know how long we will be able to hang onto the second year courses with those enrolments. I suspect just one more year. We will offer the same courses next year. I expect to see a shift away from the regular second year Physics courses to second year interdisciplinary service courses to other sciences in order to keep some second year presence in Physics (e.g., We have four interdisciplinary second-year courses. They are Environmental and Energy Physics, Biophysics, Geophysics, and History of Cosmology.).

Yours sincerely,
Richard Christie
Chair – Physics and Astronomy

j) Selkirk College

Selkirk has 17 students in the introductory course, 12 were in the program this year, and 3-5 will be continuing. Selkirk has no 2nd year courses that transfer. They are talking about re-instating a first year bridging program. The bridging program is 5 courses year 1 and 5 more in year 2. Full first year is still offered but most students take 2 years to complete.

Ross Bates

k) SFU

The engineering program at SFU is a small and specialized program with approximately 800 undergraduate students and 200 graduate and PhD students. Each year we admit, on average, 30-40 college and university transfer students into our program. There is no limit on this number. We are currently accepting all qualified applicants.

Admission requirements – College/University Transfer

Students wishing to transfer into our program from a college or university must first be admitted to the university (a minimum of 24 credit hours of transferable courses is required) at which point SFU Engineering Science will review each applicant on an individual basis for admission to our program. The student must obtain a 2.4 CGPA or higher and have been enrolled in at least a 12 credit course load in the semester prior to entry into our program. Applicants with less than 12 credits are reviewed by the Admissions Chair, Dr. Ash Parameswaran on a case-by-case basis. Approximately 250 students (High School & College/University transfer) were admitted to SFU Engineering for fall 2008.

Burnaby Program

We definitely welcome all transfer students but there are still some challenges in regards to students making a smooth transition. Last year we addressed these challenges by making adjustments to the curriculum's first year. ENSC 150 and ENSC 151 are courses that do not have equivalents at the college level. For the 2008/09 academic year we shifted ENSC 150 from first term to second term and changed ENSC 151 to ENSC 215 and placed it into the second year of our program.

The Undergraduate Curriculum Committee (UCC) is further examining ways to make the Burnaby engineering program more “transfer friendly.”

Waivers granted for BCIT work: Currently, a student with a BCIT diploma with a 65% final average or higher will be admitted to any program at SFU. Specific course credit is awarded on a case by case basis.

New BCIT waiver agreements:

BCIT's ROBT 3341 PHYS 1164 = SFU's ENSC 230

BCIT's CHSC 1103 & 2203 = SFU's ENSC 330

BCIT's COMM 1135 & 2235 = SFU's ENSC 102

Mechatronic Systems Engineering (MSE) – SFU Surrey

We have now had two intakes for the mechatronics program. In 2007 we welcomed in 70 students and in 2008 we welcomed 92. We are currently on pace to welcome in over 100 students for Fall 2009. 20-25% are International.

MSE has been very popular with transfer students. In 2007 we had 17 college and university transfer students. In 2008 we had 21 transfer students.

MSE has established a course waiver policy that is done on a case-by-case basis. Students can bring forth any course that they did not receive transfer credit for and the Mechatronics faculty will review it and grant waivers if applicable.

A transfer agreement has been arranged between Mechatronics and Kwantlen University Cloverdale. It allows Mechatronic students to do a full summer semester of autocad courses at Kwantlen to achieve a certificate. In return, it allows Kwantlen graduates of the Autocad program to receive credit for some TechOne/Mechatronic courses if they choose to move onto the Mechatronics program in Surrey.

Faculty of Applied Sciences Restructuring

As a result of an initiative that officially began in November of 2006, the University has now restructured all of its faculties. The Faculty of Applied Sciences now consists of two schools, Engineering Science and Computing Science. We have a new Associate Dean, Fred Popowich who comes to us from our School of Computing Science and we have a new Dean, Nimal Rajapakse the former engineering department head at UBC, who will be starting with us in September 2009.

We are very excited about the prospect of working in a faculty alongside Computing Science. Our two schools not only share curriculum similarities, but we also share similar general pedagogical and institutional philosophies. We are hoping that this will make it easier to increase awareness of transfer issues within the faculty.

Our Program

As of April 2009, our six program options are:

Computer Engineering
Electronics Engineering
Mechatronic Systems Engineering
Systems Engineering
Biomedical Engineering (honours only)
Engineering Physics (honours only)

The first four options listed above are Majors programs; graduation from these programs requires a minimum GPA of 2.0, completion of a Capstone Project, and a minimum of 3 co-op terms. All six options are also available s Honours. Graduation with Honours requires a minimum 3.0 CGPA and completion of an Undergraduate Thesis. Biomedical Engineering and Engineering Physics are Honours only options.

The Engineering Science program at SFU underwent a formal CEAB accreditation review in fall 2006.

Engineering Science and Faculty of Applied Science Contacts:

Dr. Fred Popowich fred_popowich@sfu.ca
Associate Dean
Faculty of Applied Science

Dr. Ash Parameswaran param@sfu.ca
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Harriet Chicoine chicoine@sfu.ca
Internship/Recruitment Program Manager
School of Engineering Science

Rich Chambers rich_chambers@sfu.ca
Recruiter/Advisor
School of Engineering Science

Questions raised at the meeting:

Transfer is course by course rather than as a block of courses. SFU doesn't think in terms of years either but rather as an integrated program, and SFU uses total credit hours instead of being a 3rd year or 2nd year student. They are now giving waivers case by case. Courses which are already in BCCAT can be assigned direct credit. There is a bit of leeway since only 120 credits are required for awarding an SFU degree while engineering is 150 credits.

Rich Chambers (Rich is the contact person for transfer.)

1) Thompson Rivers University

2008/2009 Engineering Program Summary

The TRU first year engineering program has capacity for 40 students. In fall 2008, 39 students entered the program. Eight of these had previously completed a full year of science studies or portions of the first year engineering program.

At the end of our winter 2009, approximately 25 of our students should be in a position to move into second year elsewhere. The majority of these are hoping to transfer to UBC, 4 are interested in UVic, and 3 to out-of-province institutions.

2008/2009 Engineering Program Projections XXXXX Should this be 2009/2010?

Applications for the first year engineering program are up significantly over the last year (69 versus 54 at this time last year). Thirty students have been admitted to date with the remainder still in process. We expect these figures to change as some students decline our invitation, and applications from international students are received later in the spring and early summer.

2008/2009 Points of Interest

TRU jointly hosted an Engineering Career night with UVic at our Kamloops campus this past October. The focus was to promote careers in engineering to local high school students and their parents. TRU has held events of this nature in the past and will continue to do so.

Our 6th annual Popsicle Stick Bridge contest was held on March 7, 2009 in partnership with the south central branch of APEGBC.

Our Faculty of Science is no longer providing a chemistry course specific to first year engineering. This was our first year with a general science course CHEM 152 replacing ECHE 115. CHEM 152 has been reviewed and accepted for first year engineering transfer by both UBC and UVic, but we are still waiting for BCCAT transfer guide changes to be officially reflected. Since CHEM 152 is delivered in the 2nd semester, linear algebra

(MATH 130) had to be moved to 1st semester to accommodate this change. Our mathematics department reported some challenges with this altered delivery which we will be addressing in the coming year.

Ben C. Giudici
TRU Engineering Transfer Program Coordinator

m) Trinity Western University

We promote three options for our pre-engineering and engineering transfer programs:

- 1) Take a pre-engineering year of some science courses (calculus, physics, chemistry, english, humanities electives) and apply into another university's engineering program.
- 2) Prepare for admission into UBC's second year by spending one year at TWU. This program adds linear algebra, computer programming, statics & dynamics (a modified physics mechanics course, or suggests taking this at UFV or Langara), and suggests the engineering graphics at Kwantlen.
- 3) Prepare for admission into UBC's second year by spending two years at TWU. The adds multivariable calculus, differential equations, economics (macro & micro), statistics, technology & society, some or all of which will help reduce the student's workload once arriving at UBC, and allows opportunity for more liberal arts courses.

We now have a decent brochure, and information posted at www.twu.ca/academics/science/engineering, and a growing number of prospective students interested in engineering, due to admissions learning about our transfer program options. Over the course of the year, we had 12 students express an interest in engineering transfer (and all preferring the two-year option), about half of whom say they would not have come to TWU if we had no such program. By the end of the year:

1. One has been accepted for transfer to UBC this year after two years at TWU.
2. Five plan to spend a second year at TWU before transferring, including one who needed pre-calculus courses.
3. Four had changed their plans: human kinetics, political science, environmental science, chemistry.
4. One failed most math and science courses.
5. One did well enough, but is unsure of what to do next year.

Many thanks to **Bruce Dunwoody** of UBC for his valuable feedback and endorsement of our program. Thank you to **Peter Mulhern** of UFV for being in contact around scheduling of their statics & dynamics course as well as their introduction to engineering course. Having an evening section available for Mon/Wed or Tue/Thu classes for these could be helpful to our students, but none elected to do so this year, being busy enough with their other courses and/or not interested in making the trip from Langley to Abbotsford. Thank you to **Tom McMath** of Kwantlen for being very willing to facilitate

our students' taking their May/June engineering graphics course, and this year we actually have one doing so.

We have not made any progress in considering the full development of four-year engineering programs; these are on hold due to our transition to a new Dean of Science and uncertain economic circumstances.

Dr. Arnold E. Sikkema, Associate Professor of Physics and Engineering Transfer Program Coordinator, Trinity Western University

n) UBC

1. Pre-Med Alternative Path

We have introduced an alternate path through the engineering degree programs which will simplify students being able to take the prerequisite courses for application to medical school. Students in the alternative first-year engineering program take two chemistry courses and the engineering graphics course rather than the current norm of one chemistry course and the engineering case studies course and are advised to take a second first-year English course as their humanities elective. We already allow students to take the two chemistry courses and the engineering graphics course, as some Engineering Transfer programs do and students have always been allowed to take a second first-year English course as a humanities elective. In higher years, some programs will allow other courses required as prerequisites for medical school to displace technical electives.

The reason for introducing the Pre-Med Alternative Path is to attract high school students to engineering and the main benefits of having the alternate path are to provide advise to students who would like to prepare for medical school and to provide access to courses to which engineering students currently do not have easy access. There is a cap on the number of students we will accept into this alternative path as we only have access to a limited number of seats in certain courses.

Engineering Transfer programs which currently require two chemistry courses are already starting their students on the pre-med alternative path. Other institutions could offer this alternative path as an option for its students. We are currently not anticipating admitting second-year students into the pre-med alternative path. The only

consequence for students who start in one of the Engineering Transfer programs is that they will not have preferential access to the biochemistry courses which are required as prerequisites to medical school.

2. Provincial Exams

Offers of admission are being made on interim grades, as has been done for many years. However, offers of admission are no longer being rescinded if an admission average drops below the admission average threshold based on provincial exam results. In fact, applicants to UBC are no longer required to write a provincial examination in any subject; provincial exam results are only considered in an admissions decision if the exam result improves the admission average. I expect that the number of students writing provincial exams will drop. Unfortunately, I expect that the failure rate amongst first-year students will rise as a result of more students not being prepared for success in first year at post-secondary studies.

The net effect on Engineering Transfer programs will be a decrease in the preparedness of students entering Engineering Transfer programs and an increase in the number of students continuing for a second year in an Engineering Transfer program or entering Engineering transfer programs after an unsuccessful year at university.

Raised at the meeting: The high school entrance has been raised from 81% to 83%. Engineering transfers are up while the rest of the university is seeing a drop in transfers.

3. Prerequisites For First-Year Calculus

The Mathematics Department is proposing to tighten the requirements for registration in any of the first-year differential calculus courses in order to decrease the failure rate in first-year differential calculus. The prerequisites will be either a grade of at least 80% in Mathematics 12 or a grade of at least 73% on the provincial examination. Students who achieve neither of these thresholds can write a mathematics placement test. Students who do not pass the test will be directed into a year long differential calculus course. I believe that the proposed change has not yet received approval from UBC's Senate. There is some strong support for the proposal because of the need to address the high failure rate in first-year differential calculus but there is also strong opposition

to the proposal because of the difficulties it could cause newly-admitted students. The change in prerequisites should have little effect on engineering students, who are traditionally-strong in mathematics.

4. CEAB Accreditation

We have just undergone an accreditation review of two of our programs: civil engineering and the joint program with the University of Northern British Columbia in Environmental Engineering. One statement in the report from the visiting team is "*Articulation and transfer agreements (feeder colleges and Camosun bridge program) need to recognize instructor credentials (P.Eng/EIT) for audit purposes*". Specifically, courses which are counted for engineering science or engineering design content need to be taught by professional engineers. Where this typically shows up in a first-year program is in computer programming courses. Computer programming is not considered to be "Basic Science", therefore it must be considered to be "Engineering Science".

I believe that we will need three categories of information from all institutions which deliver engineering transfer programs: Course Information Sheets for all of the courses which are part of the program, Academic Staff Information Sheets and a Summary of Curriculum table. Templates for the Course Information Sheets, Academic Staff Information Sheets and Summary of Curriculum table are contained in the Questionnaire for the Evaluation of an Engineering Program, which can be downloaded from the following website: http://www.engineerscanada.ca/e/pu_ab_1.cfm. The Questionnaire for the Evaluation of an Engineering Program contains a great deal of other information requests, but these apply to the institution and the programs being accredited not to the Engineering Transfer Programs. There are a number of separate Summary of Curriculum tables for different parts of the program being accredited. The only table which applies to Engineering Transfer Programs is the one for common core courses.

Institutions which deliver Engineering Transfer programs should maintain current information sheets and summary tables as the institutions seeking accreditation or reaccreditation and accepting students from Engineering Transfer Programs will need copies of them to add to their Questionnaires.

The same also applies for institutions offering Bridging programs from technology diplomas to engineering degrees.

A Bruce Dunwoody, Ph D, P Eng
Associate Dean - Engineering Programs

o) University of the Fraser Valley

News

In November UFV entered into a first year transfer arrangement with the University of Victoria. The first term of the transfer agreement to UVic is identical to the first semester of the transfer schedule to UBC; the programs only differ in two of the second semester courses.

UFV is seeing a distinct increase in students planning to do two years at UFV before transferring. We are actively looking into putting on additional second year courses of value to engineers.

Enrollments

The 2008/2009 academic year began with an increased enrollment with 51 students seeking to transfer to UBC. Only 24 of these students were in the “official” transfer program that required attempting completion in one year but gave students access to reserved seats; most of the remainder intended to do two years at UFV before transferring. Unfortunately, only about half of the “official” group that committed to do the program in one year completed the entire program. The primary reason for the lower than normal completion rate may be one first semester computing course that was taught with a false assumption of prior computing experience; once one course was dropped and one year program completion became impossible, many students felt little incentive to try and do the other six courses. An unpopular Math course in second term seems to have cemented this decision. Some will still attempt to transfer with one or two courses missing, but the majority have decided to stay an extra year at UFV and spread out the workload.

Of the students transferring this year (between two and three dozen) approximately one quarter have stated UBC-O as their primary destination. About half are interested in UBC-V and just under one quarter have UVic as their preferred destination. For the first time in years some students have expressed an interest in SFU, and one will look at BCIT. Overall Mechanical is still the most popular, with Electrical and Civil close behind.

The applications for 2009/2010 are up with 95 applicants, of which 62 have been actively following up on their applications. Approximately one half hope to do the program in one year, and half are entering university planning to take two years at UFV to get first year engineering and their second year math. (Of note: less than a third of our applicants make UBC’s first year entrance requirement.) Of some concern is how to accommodate all these students; we don’t know for certain how many new students will actually show up in September or how many who claim to be interested in doing the second year will return. Extra sections will need to be scheduled if everyone claiming interest in the program actually enrolls; finding space and instructors could be a problem.

P.J. Mulhern

p) University of Northern BC

The Joint UBC/UNBC Environmental Engineering Program comprises two years of science, math, and introductory engineering at UNBC, followed by two years of engineering at UBC (predominantly civil and chemical engineering courses), culminating in a half year at UNBC when students work on a capstone design project. The program has been in operation since September 2002. The third graduating class completed the program in December 2008. The program received accreditation in 2007. The initial accreditation period is until June 30, 2009, 3 years from the first site visit in 2006. The second accreditation site visit was completed in fall 2008, with preliminary positive feedback.

The program can accommodate a maximum of 40 students per year. Enrollment trends from 2002: 13 (2002), 8 (2003), 23 (2004), 14 (2005), 20 (2006), 24 (2007), 27 (2008). As of April, 30 students have accepted offers for September 2009 admission. Transfers into year 2 of the program are welcome and very feasible. Approximately 1/3 of the applicants to this program are transfer students. Transfer students comprise approximately half of those who are accepted and attend.

Curriculum revisions to increase the engineering content taught at UNBC take effect September 2009. This will simplify transfers from engineering transfer programs. A typical student transferring into the Environmental Engineering program from an engineering transfer program will now take the standard second year curriculum with the exception of replacing linear algebra (linear algebra is in the second year at UNBC) with the introductory fundamentals of environmental engineering course. These curriculum changes may make it more difficult for transfers from non-engineering transfer programs, as the students will have to take first year engineering courses in addition to any missing science courses (e.g. physics, computer science).

Steve Helle, P.Eng. helle@unbc.ca
Assistant Professor
Environmental Science and Environmental Engineering
UNBC

q) University of Victoria

Application and Enrollment Trends

The University of Victoria Faculty of Engineering undergraduate enrollment has declined over the last five years, a trend being seen across Canada. Enrolment in the new Bachelor of Software Engineering has doubled since it's inception and the demand for Mechanical Engineering remains strong.

The University of Victoria Fact Book provides a picture of enrolment trends:

Year	Full-time	Part-time	Total
2004/05	1,344	217	1,561
2005/06	1,206	189	1,395
2006/07	1,148	115	1,263
2007/08	1,122	104	1,226
2008/09	1,018	175	1,195

Applications for admission to the undergraduate program for 2009-2010 are up 9.8% overall and 18% for BC High School students, our largest group. Many students apply but not all complete the application process. Those who do and who meet all the requirements for admission are offered admission. Acceptances of offers to the B. Eng. program have been steady over the last three years. We are hoping to capture the same proportion of students as in past years, which should yield a larger first year class.

Admission Cycle	Completed Applications	Change	Offer Made	Offer Accepted	Acceptance Rate
2006	576		523	217	41.5
2007	585	9	520	220	42.3
2008	681	96	571	249	43.6

Major Curriculum Changes effective September 2009

Changes to Common First Year

At UVic, students in all engineering disciplines take the same first-year courses. Two new courses are being introduced.

1. *ENGR 110 Design and Communication I* replaces both *ELEC 199 Laboratory in Engineering Fundamentals* and *ENGL 115 University Writing*.
2. *ENGR 111 Design and Communication II* replaces both *ELEC 199 Laboratory in Engineering Fundamentals* and *ENGL 135 Academic Reading and Writing*.

New Degree Options

- Computer Engineering: Information and Systems Security Option
- Electrical Engineering: Information and Systems Security Option
- Software Engineering: Biomedical Engineering Option
- Software Engineering: Communications and Networking Option

Mechanical Engineering: Honours Thesis introduced

New Transfer Agreements

UVic has completed new transfer agreements with the University of the Fraser Valley and the College of New Caledonia, preparing students for entry into second year at UVic. Transfer agreements are in progress with several other BC colleges and universities.

Faculty and University Budget

We have implemented the 2% budget cut imposed last year. This year, provincial funding to the university is stable: similar to last year with inflationary increases in non-salary budgets made up by funding from increased enrollments.

Personnel changes

The term of Dr. Michael Miller as Dean of Engineering expired June 30, 2008. Dr. Tom Tiedje was appointed Dean of Engineering, effective September 1, 2009

Dan Hoffman, Associate Dean of Engineering

r) Vancouver Island University

1. In the Fall of 2008 Vancouver Island University (VIU) had approximately 30 students entering the first year Engineering transfer programme, half of whom were in the UVic stream. This number is approximately unchanged from the year before. It is estimated that 20 of these students will have high enough GPA to transfer into second year engineering, with approximately five staying at VIU, five transferring to UVic, and ten to UBC and other institutions.
2. In the school year 2008/2009 the number of students who were officially in the two-year UVic transfer programme is also unchanged from the previous year, however, additional students are registered in individual second year engineering classes.
3. We are continuing our promotional campaign for the engineering programme with access to the local media, visits of our faculty to high schools and holding the Engineering Fair a few times per year. The Engineering Fair is a full-day event with information about engineering and a siege engine building competition for Grade 11 physics students.
4. 2008/2009 is the second year of our optional Co-Op programme for students completing first year engineering. Nine students are currently registered in the Co-op preparatory course, one more than last year. In the summer of 2008 all eight students were employed and we expect similar placement success in the summer of 2009.

Paris Polydorou
Dept. of Physics, Engineering and Astronomy
Vancouver Island University

4. Round Table plus Additional Matters from the Institutional Reports:

CEAB

UBC had CEAB visits in civil and chemical engineering this year. The accreditation board wants to know how many P.Eng's are teaching in the first year transfer programs. They will need three things: a course information sheet for each course in our programs; an academic summary on each instructor; and a summary of curriculum table. Templates for these are on the www.engineeringscanada.ca website. Courses are to be identified as Math, basic science, engineering science, engineering design, and complementary studies. Bruce would like us to make this information available for every first year engineering program in the province. CEAB only cares about P.Eng's teaching engineering science and engineering design. (CEAB needs a minimum number of units of Engineering Design taught by P.Engs, and a minimum number of Engineering Studies and Engineering Design taught by P.Eng.'s) First year is less of an issue as long as there are enough P.Eng's teaching in the programs once students are in 2nd, 3rd, and 4th year at the receiving institution. People in the process of applying for a P.Eng. or with a Limited License may also qualify to teach these courses. Note: a "weakest link" philosophy is used, and a course that is only occasionally being taught by a P.Eng. does not count as a P.Eng course.

UBC will probably ask for this information formally in May 2010. UVic may need to ask for it earlier.

Academic Honesty

Peter Mulhern reported that students are making free use of "Cramser" a website with complete copies of the instructor manuals for textbooks.

A suggestion on dealing with this is to require offending students to write an essay on the APEG code of ethics.

Courses That Can Transfer into Second Year

Many of us have students back for a 2nd year because the students are intentionally doing a reduced workload or may have failed a course in the previous year. The sending institutions would like to offer four reasonably full semesters. What second year courses the most useful to offer?

The primary response was to look into Math (including the calculus based Stats course). There is also a need for additional humanities courses, such as history, sociology, psychology, political science, geography, and for UBC or SFU economics works. Technical writing is a possibility. There is a new openness to APSC 201 and ENGR 240. It's possible that business writing would now be acceptable. UBC's contact name is Rob Hall. The most likely engineering courses are: solid mechanics, fluid mechanics, and maybe circuits. Computer science courses may also work. The sending institution needs to make specific contacts at the receiving institutions and have them review the courses.

Scheduling for Students Transferring Without Specific Courses

Some students transferring may have some second year courses (usually in Math), but be missing the first year dedicated engineering courses. Students hope that they will be able to make up the missing first year courses in their first year at UBC or UVic, but often find that there are scheduling conflicts with other courses. Ultimately this adds a year to the transferring students' schedules. Addressing this scheduling issue at the receiving institution would be of great help for the students, especially those from the smaller sending institutions.

A related question was "can a student starting at a receiving institution later take a missing course elsewhere?" In short, "yes" if a letter of permission is obtained first.

Do the Receiving Institutions Require Completion in One Year?

All three receiving institutions are willing to accept students who do the transfer programs over two years, though there are some variations in policy details. There is no bias for or against completing the transfer in one or two years.

A related question was raised: How many students complete in 4 years?

SFU said it is less than 50% and may be around 30%

UBC said co-op adds a year, but even then the completion in minimum time is probably similar to SFU.

UVic said less than 50% complete on the schedule.

Website Links

Kwantlen requested UBC, UVic, and SFU provide links from their websites to those of the feeder institutions. Many students seem to have trouble learning about the existence of transfer programs.

Pressure to Shut Down Small Programs

A common theme in many of the institutional reports was pressure from administration close down small programs. This was felt by UBC, UVic, and SFU to be foolish, and a joint letter is to be drafted by them to the Deans and VP Academics of all the feeder institutions and to the government pointing out the value of the transfer programs and the need to continue them. Ministry guidelines that put pressure on these courses and programs may be counter-productive.

ACTION ITEM: UBC will draft the letter and send it out to SFU and UVic representatives.

Transfer and Residency Requirements

Traditional degrees are 120 credits and there is a 50% residency requirement. However Engineering programs are in the 150 credit range, and the question arose of how the residency requirement is implemented.

UBC feels the 50% refers to the total program, so about 75 credits can be transferred in. A typical degree at UVic is 60 credits (40 courses), but engineering is 47 courses; UVic feels 27 courses could be transferred in. SFU is about 150 credits, and feel 60 credits must be earned at SFU; SFU grants waivers for many transfer courses as they feel this does not put most students at risk for dropping below the 60 SFU credits. ACTION ITEM: The big three were asked to check how their residency requirements were applied to make sure the information here is correct.

Related point: BCCAT has stated that 3rd and 4th courses cannot be in the transfer guide. However this does not prevent institutions from accepting them on a case by case basis. The BCCAT restriction may change in the future, but the change is probably not imminent.