

SENATE

MEETING DATE: *August 23, 2010*

AGENDA #: *3.9*

PRESENTED BY: *Dana Cserepes*

Issue: Approval of a full program proposal for a Bachelor of Trades and Technology Innovation

For approval: THAT Senate approve the full program proposal for a Bachelor of Trades and Technology Innovation

Full Program Proposal

Bachelor of Trades and Technology Innovation

Faculty of Trades & Technology

Kwantlen Polytechnic University

August 2010

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Part 1 - Executive Summary

Founded as a community college for the South Fraser Region in 1981, subsequently granted university college status in 1995, and university status in 2008, Kwantlen Polytechnic University has provided outstanding undergraduate education for more than twenty-five years. Undergraduate degrees have been offered at Kwantlen since 1996, along with a wide array of diplomas, associate degrees, certificates and citations in different fields of study. The university continues to prepare its students for successful careers as well as helping them develop the skills and critical awareness to be responsible citizens and community leaders. Today, Kwantlen serves approximately 17,500 students each year and is the fourth largest university in British Columbia.

Designated as a “special purpose teaching university”, Kwantlen Polytechnic University was specifically directed to serve the regions encompassing Langley, Surrey, Delta and Richmond. Across its four main campuses, Kwantlen takes up its role as B.C.’s polytechnic university by offering in excess of 130 programs spanning such diverse educational areas as Trades, Vocational, Preparatory, Professional, and Academic. As a leader in innovative education, Kwantlen creates relevant and engaging programs that integrate a broad-based university education, community service opportunities, undergraduate and applied research experience, and essential skills practice. The learning culture at Kwantlen is learner-focused, academically rigorous, innovative, interdisciplinary and socially responsible.

Arising from its commitment to serve the Fraser Region, Kwantlen offers all learners, regardless of background and preparation, and from across the country and abroad, opportunities to achieve the highest standards of academic performance. Access and support services, multiple entry points, and bridging programs are examples of this commitment. Transition programs, international education, workplace experiences and continuing education are also part of Kwantlen’s commitment to lifelong learning across a broad range of educational options.

Our university culture is based on critical inquiry, collegial debate, knowledge generation, freedom of expression, diversity, and environmental stewardship and sustainability.

See the Mission & Mandate document at: <http://www.kwantlen.ca/mission/mission-mandate.html#>.

Proposed credential to be awarded, including the level and category of the degree and the specific discipline or field of study

Bachelor of Trades and Technology Innovation.

Location

The program will be offered on Kwantlen's Cloverdale Campus.

Faculty(ies) or school(s) offering the proposed new degree program

The Faculty of Trades and Technology will be offering the proposed Bachelor of Trades and Technology Innovation degree.

Anticipated program start date

The anticipated start date of the program (third year) is September 2011.

Anticipated completion time in years or semesters

Students engaged in full-time study will be able to complete the Bachelor of Trades and Technology Innovation over four semesters. Entrance requirements into third year include 60 undergraduate credits or equivalent.

A summary of the proposed program

Key features of the Bachelor of Trades and Technology Innovation degree include the following:

Aims, goals, and or objectives of the proposed program

As indicated in *Skills for growth: The national skills strategy*, which was presented to the British Parliament in 2009, noted "the skills system needs to mesh with our university system in such a way that there is a clear vocational route from apprenticeship to technician to foundation degree and beyond." (p. 1, 2009). This proposed degree provides that pathway.

This proposed degree provides the pathway for individuals to ladder into the third year of the degree with a Trades Qualification recognized by the Industry Training Authority of BC (ITABC), and/or a Red Seal with Human Resources Service Development Canada (HRSDC).

This proposed degree will also accept students into the third year of the degree with post secondary credits awarded in approved trades and/or technology courses. Approved courses will be identified as having substantial trade and/or technology focus to provide a foundation that will support the proposed community/industry based projects in the fourth year.

Anticipated contribution of the proposed program to the mandate and strategic plan of the institution

Kwantlen's Mission and Mandate states "*as a leader in innovative and interdisciplinary education, we offer all learners, regardless of background and preparation, opportunities to achieve the highest standards of academic performance. Our many programs of study provide applied learning and broad-based university education*". Kwantlen is bringing this mandate to life by:

- Preparing graduates to apply their experiential education and give them agency to take leadership roles in businesses and communities
- Preparing knowledgeable skilled graduates who are able to meet needs and challenges that face society

Given the diversity of study areas at this polytechnic university, this proposed degree will give students the opportunity to gain depth in trades and technology while at the same time acquiring breadth in a variety of disciplines.

Linkages between the learning outcomes and the curriculum design, an indication whether a work experience/work place term is required for degree completion, and if so a description of the purpose and role of the work experience within the program

Learning outcomes were identified in consultation with trades/technology faculty and a large Program Advisory Committee (BTech PAC) with members from industry, regulating bodies, secondary and post-secondary education, and trades and technology students. (see Appendix A for a list of BTech PAC members).

The curriculum will be derived from these learning outcomes and will be conducive to the capstone project in the fourth year. Students will partner with a community or industry group to develop solutions to an identified need. The learning outcomes encompass a broad range of skills and knowledge required to complete the capstone project, such as:

- implement information technology to improve productivity
- follow regulatory and legal requirements and policies for health and safety
- conduct cost-benefit analysis of sustainable practices
- apply critical thinking and problem solving techniques to make decisions
- determine the most expedient design given parameters and constraints set by budget, time, standards and codes
- document research in a format that will enable repeatable results

There is no work experience/practicum required. Students who enter this program will benefit from the experience and knowledge they will gain from the community service project (Capstone Project) in the fourth year of the degree.

Potential areas/sectors of employment for graduates and/or opportunities for further study

Potential areas of employment for graduates include trades and technology careers in:

- Positions of management in trades and technology industries
- Planning and Design (engineering, industrial, architectural)
- Resource management
- Infrastructure
- Manufacturing / Fabrication / Construction
- Project management
- Product development
- Research and development of new techniques and procedures for construction and fabrication
- Sustainable building practices and renewable energy sources

Delivery methods

The structure of the program will allow for all delivery types, such as part-time, distance and classroom/lab and shops.

A range of educational opportunities will be made available to ensure that students who are mid-career are able to continue with their working life while completing the degree.

Program strengths

In granting post-secondary credits to Trades Qualification training and to training in technology, the degree gives academic recognition and respect to the significant learning that occurs in the informal learning environment that occurs at work as well as the formal learning that occurs at school.

The proposed Bachelor of Trades and Technology Innovation builds on the efficacy of practical, hands-on experience in the Faculty of Trades and Technology and enriches the learning experience by incorporating the institution's strengths in humanities, social sciences and business. The program takes a thematic approach to the development of leadership attributes and skills while considering the ramifications of technical advances in the realm of society, economics, the environment and sustainable resources.

This degree is designed to be flexible to keep up with the changing developments in technology. The program will be reviewed annually by the Program Advisory Committee (BTech PAC) to ensure validity and currency in the program. It will also be reviewed by the Senate Sub-Committee on Program Review (SSCPR).

An overview of the level of support and recognition from other post-secondary institutions, and relevant regulatory or professional bodies, where applicable, and plans for admissions and transfer within the British Columbia post-secondary education system

Support and commentary has been received from the following:

Regulatory Bodies

- Industry Training Authority of BC (ITABC)

Professional Bodies

- Applied Science Technicians and Technologists of BC (ASTTBC)

Other Post-Secondary Institutions

- Fanshawe College , London, Ontario

Admissions and Transfer within the BC Post-secondary education system

Transfer Credit and Prior Learning Assessment

Students may utilize up to 75% transfer credit, block transfer credit, or credit earned through Prior Learning Assessment (PLA) or any combination of those three sources of credit earned outside of Kwantlen that does not exceed 75%.

The program is designed to accommodate students arriving with a variety of backgrounds. Students transferring courses from within the British Columbia Post Secondary education system will have a relatively direct pathway.

Related programs in the institution or other British Columbia post-secondary institutions. Indicate rationale for duplication, if any.

This degree has similarities in structure, i.e. a two plus two format or identified student target groups, i.e. individuals with a background in trades and technology, with the following programs:

Other BC Post-Secondary Institutions

- TRU – BTech in Trades and Technology Leadership
- UFV – Bachelor of Business Administration – Trades Management
- BCIT – Bachelor of Construction Management

Name, title, phone number and e-mail address of the institutional contact person in case more information is required.

Joanne Massey
Department Chair, Computer Aided Design and Drafting (CADD) Technologies

joanne.massey@kwantlen.ca

604-598-6120

Part 2 – Degree Content

Aims, goals, and or objectives of the proposed program

This program will recognize the learning, knowledge and skills acquired in a ticketed trade by granting academic credit to the ticket, which will enable ticketed journeypersons to advance their careers by completing an additional two years of studies in various disciplines to obtain an undergraduate degree.

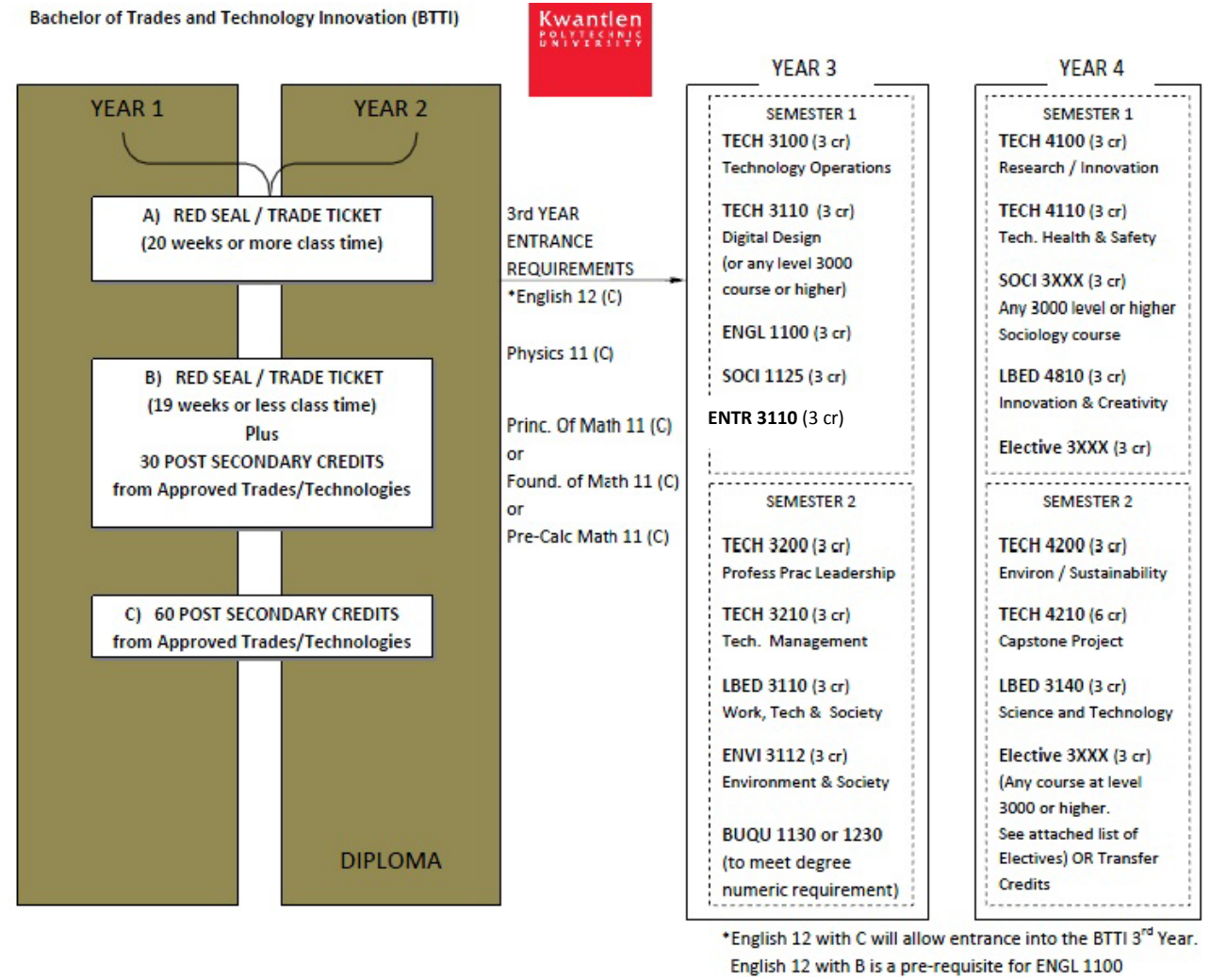
This proposed degree will also accept students into the degree stream with post secondary credits awarded in *approved trades and/or technology courses. These courses will be identified as having substantial trade and/or technology focus to provide a foundation that would support the proposed community based projects (Capstone Project) in the fourth year.

This program will relate to, and engage with, existing or proposed programs at Kwantlen by recognizing the valuable contribution of the outcomes from humanities, social sciences and business courses, and incorporating them into this degree.

***Approved trades/technology courses:**

- 1) All credited programs delivered by the Faculty of Trades and Technology at Kwantlen;
- 2) Training/education in all industry areas identified as Technician/Technology occupations with the Canadian Technology Human Resources Board (CTHRB);
- 3) Training/Education in all industry areas identified as Trades Qualifications with the Industry Training Authority of BC (ITABC), and/or a Red Seal with the Human Resources Service Development Canada (HRSDC);
- 4) Training/Education in any industry area judged on a case by case basis to be conducive to the Bachelor of Trades and Technology Innovation by the BTech Degree Review Panel at Kwantlen; or
- 5) Up to 15 post-secondary credits obtained in fields other than those outlined above.

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Graduates of this program will:

- Relate the principle assumptions, methodologies and applications of trades and technology and the way that these professional fields have developed.
- Interpret the relationship and interaction of trades and technologies with other disciplines of study.
- Assess developments, needs and trends in the fields of trades and technology.
- Interpret and critically evaluate and apply new material relevant to the fields of trades and technical leadership.

- Debate and sustain arguments, and/or solve practice-related problems, using ideas and techniques, some of which are at the forefront of trades and technology.
- Evaluate and comment upon particular aspects of current research/development, or equivalent advanced scholarship in trades and technology and how these are relevant.
- Collect, review, present and critically evaluate qualitative and quantitative data pertaining to trades and technology.
- Apply underlying concepts, principles, and techniques of analysis, both within and outside the context of trades and technology.
- Use a range of established techniques and bodies of knowledge to initiate and undertake critical analysis of arguments, assumptions, abstract concepts and data.
- Apply the methods and techniques of experience in trades and technology to extend professional competence, including ethics and other professional practices.
- Frame appropriate questions to achieve a solution or to identify a range of solutions to challenges in trades and technology.
- Research, develop and document solutions to issues and innovations in trades and technologies.
- Initiate and carry out trades and technology projects.
- Make critical use of scholarly and professional reviews and primary sources appropriate to trades and technology.
- Prepare for employment in a trade/technology field that requires the exercise of initiative, responsibility and accountability in both personal and group contexts.
- Apply leadership and management skills.
- Make decisions in complex and unpredictable contexts.
- Communicate information, arguments, and analyses accurately and reliably, using trades and technology concepts and terminology, orally and in writing.

- Analyze the uncertainty, ambiguity and limits of knowledge and how this might influence analysis and interpretations based on that knowledge of trades and technology.
- Manage learning in changing circumstances, both within and outside trades and technology courses.

Anticipated contribution of the proposed program to the mandate and strategic plan of the institution

This degree will fulfill item #1 of the Senate approved Academic Planning and Priorities to “implement and support new programs, especially those that reflect community needs, labour market and broad societal education needs, and which are in keeping with Kwantlen’s values and mandate as a Polytechnic University.” In this integrated program, students will develop a broad range of knowledge, attitudes, and skills to be effective and innovative leaders in their careers and communities. Students will participate in community/industry service projects that will develop sustainable solutions to identified needs.

This program will give students the benefit of a supportive educational environment with low student-teacher ratios and student-centered learning from instructors that possess both education and extensive experience in a Trade or Technology field. Students will graduate with a broad base of knowledge as well as specialized skills and practical experience.

A focus of the degree will create an environment for students to engage in community/industry issues by establishing relevant research projects. Students will identify a need that can be addressed by the particular trade or technology that each individual student is focusing. Students will engage with community/industry groups to research and develop sustainable solutions based on needs analysis, and record the research for future replication to provide on-going and future benefits to society.

Six key values have been identified as a guide for planning new degree programs at Kwantlen Polytechnic University, and these have been at the forefront in the development of this Bachelor of Trades and Technology Innovation:

Exploration, Inclusiveness, Excellence, Integrity, Community and Accountability.

Linkages between the learning outcomes and the curriculum design, an indication whether a work experience/work place term is required for degree completion, and if so a description of the purpose and role of the work experience within the program

Learning outcomes listed throughout this proposal, and in the Course Descriptions in Appendix B were developed through long standing consultation with industry professionals and other stakeholders who now make up the Bachelor of Trades and Technology Innovation Program Advisory Committee (BTech PAC).

The concept for the originating Trades diploma was approved by Kwantlen's Educational Council in April 2005. This degree is built upon the basis of that diploma.

Through an industry needs assessment survey conducted in November 2009, 132 respondents provided feedback regarding a need for the degree, and what the content should be.

Two BTech PAC meetings were held in March and April 2010 during which the degree learning outcomes were identified. The learning outcomes encompass a broad range of trades and technology related skills and knowledge such as:

- implement information technology to improve productivity
- follow regulatory and legal requirements and policies for health and safety
- conduct cost-benefit analysis of sustainable practices and of alternate energy sources
- apply critical thinking and problem solving techniques to make decisions
- determine the most expedient design given parameters and constraints set by budget, time, standards and codes
- apply project management skills
- establish project teams and develop project proposals
- identify required material and human resources and raise funds
- apply Kaizen (continuous incremental improvements) and Business Process Reengineering (BPR) techniques for improvement in productivity and performance
- document research in a format that will enable repeatable results

Curriculum will be developed upon the foundation of these learning outcomes to ensure that the integrity of the degree is maintained as well as meet industry needs and expectations.

There is no work experience or practicum required in the degree. There is a Capstone Project in the fourth year, in which students will be engaged with a community or industry partner to research, develop and implement a solution to an identified need or challenge.

Potential areas/sectors of employment for graduates and/or opportunities for further study

Employment for Graduates

The nature of the learning and applied skills acquired in this degree will broaden opportunities for graduates to advance their careers in trades and technology. Having obtained increased knowledge and understanding of the peripheral ramifications of technological advancement, graduates may seek employment in the trades and technology sector within positions of management, planning, design, resource management, infrastructure, manufacturing, fabrication, construction, project management and product development. Opportunities in areas of research and development that focus on new techniques and procedures for construction and fabrication, sustainable building practices and renewable energy sources are also career pathways to be pursued.

Skills, knowledge and expertise that will lead to employment for graduates of this degree were identified in Needs Assessment Surveys that were conducted in October and November 2009. The surveys included Industry, current Trades and Technology students, and Secondary School teachers.

Further study for Graduates

This degree will permit graduates to pursue additional credentials in areas such as business, education and architecture.

Delivery Methods

The structure of the program will allow for all delivery types, such as part-time, distance and classroom/lab and shops.

A range of educational opportunities will be made available to ensure that students who are mid-career are able to continue with their working life while completing the degree.

Program Strengths

This program provides opportunity for students from Kwantlen and other provincial and national institutions to apply existing education towards a degree. This includes mid-career professionals who have been working in their respective fields for several years before entering into the degree program, and students transferring from other institutions who have earned the required number of trades and/or technology post-secondary credits.

This program decreases systemic barriers to undergraduate degrees by formalizing the recognition of the knowledge, skills and experience of students who have successfully completed their trade or technology program and are seeking opportunities to advance their career. This program supports learning beyond the trades and technology fields.

One strength of this program is that students who have the following credentials and meet the degree entrance requirements can ladder into the 3rd year of the Bachelor of Trades and Technology Innovation:

- Trade ticket in a trade as defined by the Industry Training Authority of British Columbia (ITABC) and/or Red Seal Certification as defined by Human Resources Service Development Canada (HRSDC) that incorporate 20 weeks or more of classroom instruction.
- Trade ticket in a trade as defined by the ITABC and/or Red Seal Certification as defined by HRSDC that incorporates 19 weeks or less of classroom instruction, plus 30 post-secondary or undergraduate credits in Trades and/or Technology courses.
- 60 post-secondary credits in approved Trades and/or Technology courses.

Another strength of this program is that it is ideally suited for mature students, particularly trades journeypersons who wish to use their experience as a basis to enrich their employment by entering into a management or leadership position, or by owning and operating their own company.

Many immigrant professionals have entered into a trade in BC as an expedient way to take short packages of training and then enter the workforce to continue the required on the job training, but at the same time earn a wage. In some cases, immigrant professionals can transfer credits from education from outside Canada that could be included as an elective in the third or fourth year.

An overview of the level of support and recognition from other post-secondary institutions, and relevant regulatory or professional bodies, where applicable, and plans for admissions and transfer within the British Columbia post-secondary education system

Regulating Bodies

Doug Podetz

Lead, Program Standards
Industry Training Authority BC (ITABC)

Professional Bodies

Geoff Sale

Past Chair, Canadian Technology Accreditation Board
Canadian Council of Technicians and Technologists (Ottawa, Ont.)
Manager, Internationally Trained Professionals Program,
Applied Science Technologists and Technicians of BC

Other Post-Secondary Institutions

Lane D. Trotter, Ed.D. (formerly Dean of Transportation at BCIT)
Senior Vice President, Academic
Fanshawe College, London, Ontario

See Appendix D for external comments and support

Admissions and Transfer within the BC Post-secondary education system

Transfer Credit

Students may utilize up to 75% transfer credit as outlined in the BC Council on Admissions and Transfer (BCCAT) Transfer Guide, or granted to courses on an individual basis, to obtain the proposed degree.

Block Transfer

Students who have a credential in a recognized trade, or as a technician or technologist in a recognized technology, may transfer the appropriate number of credits for the credential as a block of credits without scrutiny of individual courses.

Prior Learning Assessment

Students may utilize up to 75% credits earned through Prior Learning Assessment (PLA) to obtain the degree, or they can utilize a combination of transfer/block credit and PLA credit that does not exceed 75% of the undergraduate credits required for the degree.

Related programs in the institution or other British Columbia post-secondary institutions. Indicate rationale for duplication, if any.

Other BC Post-Secondary Institutions

This degree is similar to some other degrees in BC post-secondary institutions in that it accepts up to 60 undergraduate credits for trades or technology training:

- TRU – BTech in Trades and Technology Leadership
- UFV – Bachelor of Business Administration – Trades Management
- BCIT – BTech in Construction Management

Curriculum Design

Year 3, Semester 1

TECH 3100* - Technology Operations
TECH 3110* - Digital Design (or elective, any level 3000 course or higher)
ENGL 1100 – Writing, Reading, Thinking
SOCI 1125 – Introduction to Society
ENTR 3110 – Adv. Organization Behavior

Year 3, Semester 2

TECH 3200* - Profess Practice / Leadership
TECH 3210* -Technology Management
LBED 3110 - Work, Technology & Society
ENVI 3112 - Environment & Society
BUQU 1130 or **1230** – Business Math or Statistics

*New Course (to be developed)

See Appendix B for new (TECH) course descriptions

Year 4, Semester 1

TECH 4100* – Research and Innovation
TECH 4110* – Technology Health & Safety
SOCI 3XXX - Any 3000 level or higher Sociology course
LBED 4810 - Innovation & Creativity
Elective - Any level 3000 or higher.

Year 4, Semester 2

TECH 4200* – Environmental Sustainability
TECH 4210* - Capstone Project (6 credits)
LBED 3140 - Science and Technology
Elective - Any level 3000 or higher.

Program Delivery

This program relies on a unique complement of theoretical courses, applied hands-on courses, and provides for a variety of teaching/learning modalities. Shop and laboratory-based experiential studies will help students to develop critical thinking and problem solving skills.

Further, the program requires a Capstone Project in fourth year that will be executed in collaboration with a community/industry partner. Students will work with a project advisory committee, comprised of industry and educational mentors, who will provide a network of support. Students will present the completed project to stakeholders.

Students will have the option of enrolling in this program on either a full or part-time basis. Some core and elective courses are currently and routinely available at the Langley, Surrey and Richmond campuses and across all three academic semesters. This will increase program accessibility. Also to maximize accessibility it is anticipated that some courses will also be available as evening and/or weekend classes and students will be able to flexibly schedule their required fieldwork.

Admission Requirements

Students entering into the third year of this degree must meet two requirements:

- 1) They must have a Trades Qualification and/or post-secondary credits in approved technology courses:
 - Trade ticket in a trade as defined by the Industry Training Authority of British Columbia (ITABC) and/or Red Seal Certification as defined by Human Resources Service Development Canada (HRSDC) that incorporate 20 weeks or more of classroom instruction.
 - Trade ticket in a trade as defined by the ITABC and/or Red Seal Certification as defined by HRSDC that incorporates 19 weeks or less of classroom instruction, plus 30 post-secondary or undergraduate credits in Trades and/or Technology courses.
 - 60 post-secondary credits in approved Trades and/or Technology courses.

- 2) They must meet entrance requirements which have been identified as:
 - Principles of Math 11-C or Foundations of Math 11-C or Pre-Calculus 11-C (or equivalent or higher)
 - Physics 11-C (or equivalent)
 - English 12-B (or equivalent or higher) Note: English 12 with a C will allow entrance into the BTrades/Tech 3rd Year. English 12 with a B is a pre-requisite for ENGL 1100.

The entry requirements support students' success in the prescribed third and fourth year courses, and meet writing, quantitative and breadth requirements for a degree as outlined in Kwantlen Policy B.19, "General Education in Degree Programs".

Faculty

The following Kwantlen Polytechnic Faculty have industry experience at senior levels. Several have Engineering degrees in addition to advanced degrees and professional credentials.

Dr. Paul Becker: B.Sc. An engineer with an MBA and a Ph.D. (Education, University of Saskatchewan)

Ali Hassanlou: B.Eng., Industrial, M.Eng., Industrial, M.Eng., (Iran) Engineering Management (Ottawa) Ph.D. in Management (Carleton)

Xing Liu: B.Sc., Electrical Engineering, M.Sc. (Electrical Engineering), Ph.D. (Wales)

Marcelo Machado: Bachelors in Industrial Engineering, Masters in Production Engineering and Systems, PhD Knowledge Management Systems, Japan Advanced Institute of Science and Technology (JAIST).

Brad Anderson: B.Sc., Biochemistry, M.Sc., Medical Science, MBA (UBC)

Catriona Eigenfeld: B.Sc., Accounting, MBA (DePaul University, Chicago), CMA

Ho Yee Low: MBA (City University, Seattle), CMA

Ron Messer: B.Comm., MPA, Systems (UVic), MBA, Finance (UBC), CA, CMA

Duane Radcliffe: B.Phys.Ed., MBA – Human Resources Management (Royal Roads Univ.)

Mehdi Talwerdi: B.Sc., Computer Science and M.Sc. Computer Science and Geophysics (East Texas State University)

Vasile Zamfirescu: B. Comm. International Business, M.Sc., Industrial Engineering, MBA Operations and Marketing (U of A)

The following four members of the Trades and Technology Faculty have certification in a specific trades and technology area complemented by a Masters in Education.

Tally Wade: Management Development Certificate, P.I.D., Med. Leadership (SFU) with expertise in Public Safety Communications

Mary Wilton: Parts and Warehousing TQ(IP), M.Ed. Leadership (SFU)

Rob Finlayson: Metal Fabrication TQ(IP), P.I.D., M.Ed. Leadership (SFU)

Christina Heinrick, Diploma in Drafting, Diploma in Adult Education, M.Ed. Leadership with expertise in CADD Technologies

Additional faculty and resource people will be drawn from industry where additional expertise or currency is required, as is the practice in our Interior Design and Business programs.

See Appendix C for Faculty Curriculum Vitae

Program Resources

- **Library resources**
Library resources at the Cloverdale Campus will need to be increased to support third and fourth year courses.
- **Computer and computer access**
No additional computer resources are required.
- **Classrooms, laboratories and equipment**
Equipment:
A rapid prototyper and computerized assisted machining (CAM) router will be required for development of projects as well as fluid power and metals testing equipment.

The division will seek industry partnerships to provide much of the additional equipment required of this program. Some additional capital funding required.

- **Facilities**
No additional facilities will be required, but additional time in the trades shops will be required, which includes access to these shops on evenings and weekends.
- **Existing and shared resources at the institution or at other institutions that will be used to offer the program**
The Faculty of Trades and Technology will work closely with the BTech program and with the other School of Business Degree programs. Several School of Business faculty are also highly qualified and experienced in specific technologies.
- **Additional resources that will be required to offer this program**
There will be an additional 2 faculty FTE required for the first cohort. Some of the course content will be drawn from existing courses offered elsewhere within the institution.

Implementation Schedule

Sept 2010	Develop course outlines for new courses for Year 3, Semester 1 TECH 3100, TECH 3110
Nov 2010	Senate approval for new course outlines for Year 3, Semester 1
Jan 2011	Develop course outlines for new courses for Year 3, Semester 2 TECH 3200, TECH 3210

Mar 2011	Senate approval for new course outlines for Year 3, Semester 2
Sept 2011	Implementation of Year 3, Semester 1
Sept 2011	Develop course outlines for new courses for Year 4, Semester 1 TECH 4100, TECH 4110
Nov 2011	Senate approval for new course outlines for Year 4, Semester 1
Jan 2012	Develop course outlines for new courses for Year 4, Semester 2 TECH 4200, TECH 4210
Jan 2012	Implementation of Year 3, Semester 2
Mar 2012	Senate approval for new course outlines for Year 4, Semester 2
Sept 2012	Implementation of Year 4, Semester 1
Jan 2013	Implementation of Year 4, Semester 2

Program Consultation

2004-2005	Consultation with Program Advisory Committee members for all programs in the Faculty of Trades and Technology at Kwantlen for development of Trades Diploma
Nov 2009	Needs Assessment Surveys for BTech Industry Needs Assessment survey (132 respondents) Post-Secondary Technical Education teachers (15 respondents) Current Trades/Technology students (300+ respondents)
March 2010	BTech Program Advisory Committee meeting (determine learning outcomes)
April 2010	BTech Program Advisory Committee meeting (determine new courses, names and descriptions)
July 2010	Consultation with external post-secondary, regulating and professional bodies

See Appendix D for external comments and support.

Bachelor of Trades and Technology Innovation

Appendices

- A Program Advisory Committee Members
- B TECH Course Descriptions (New Courses)
- C Faculty CV's
- D Comments from Program Consultations

Bachelor of Trades and Technology Innovation

Program Advisory Committee Members

BTech PAC

Internal (Kwantlen)

Joanne Massey	Project Coordinator/CADD Dept Chair
Wayne Tebb	Dean, Faculty of Trades and Technology
Al Sumal	Department Chair, Metal Trades
Doug Wiebe	Department Chair, Millwright
Roger Cannon	Faculty, Building Trades (Electrical)
David Fengstad	Department Chair, Appliance Servicing
Larry Rhodenizer	Department Chair, Automotive Trades
Tally Wade	Department Chair, Public Safety Communications
Elaine Decker	Director, Educational Development

External

Adam Thorvaldson	Skills Canada Chair
Martin Lim	Tech Ed teacher, Fraser Heights Secondary,
Rick Higginson	Farrier PAC member (has a Bachelor in Forestry)
Jim Mantei	Millwright PAC member, General Manager of Van Gear
Randy Callaghan	Carpentry PAC member, Field Personnel Advisor, PCL Constructors
Brian Pichette	Welding PAC member, Welding Supervisor/Inspector, Dynamic Structures
Lloyd Stamm	Automotive PAC, Chief Executive Officer, Automotive Training Standards Organization (ATSO)
Kim Singh	Public Safety PAC member
George Cawdry	CADD PAC member (Fraser Health)
Julia Skoczylas	CADD student (BC Hydro)
Ian Vissers	(Automotive student)
Brett Griffiths	VCC, Automotive instructor
Dr. Skosnik	Executive Director of the Line Contractor's Association
Al Fitzsimmons	(Masonite Canada Ltd.)
Andy Sanghera	(welding student)
Leonard Nikolai	Tech Ed Teacher, Queen Elizabeth Secondary School
Paul Ritter	Professional Engineer (Electrical/Mechanical)
Doug Podetz	Lead, Program Standards, Industry Training Authority of BC (ITABC)
Geoff Sale	Manager, Internationally Trained Professionals Program, Applied Science Technologists and Technicians of BC (ASTTBC) Past Chair, Canadian Technology Accreditation Board (CTAB)

New Courses
TECH Course Descriptions
Bachelor of Trades and Technology Innovation

Third Year

TECH 3100 - Technology Operations (Cr: 3)

Students will apply management, budget and purchasing activities. They will conduct document management procedures, run meetings, and apply accounting and economic principles to expedite business operations. They will apply labour relations and human resources management techniques, and apply conflict resolution procedures. Students will apply effective customer service and marketing procedures, and follow the principles of business law. They will implement information technology to improve company productivity and maintain customer relationships using a data base. Students will identify global issues and how they affect business operations, conduct ecommerce and use mobile and global communications.

TECH 3110 – Digital Design (Cr: 3)

Students will follow the design process and create orthographic and pictorial hand sketches to develop design concepts. They will analyze form, function and design intent to determine the most expedient design given parameters and constraints set by budget, time, standards and codes. Students will use computer aided design and drafting software to create 3D models and 2D drawings. They will use CNC software and equipment and rapid prototyping equipment to produce working models of designs. Students will produce bills of materials and do material take-offs to estimate costs.

TECH 3200 - Professional Practice and Leadership (Cr: 3)

Students will follow regulations that govern a specific specialty area. They will apply ethics to all professional activities and identify accountability and liability issues and how they affect practice. Students will give and follow instructions, apply critical thinking and problem solving techniques to make decisions, and maintain current knowledge of technology related to a specific specialty area. They will apply interpersonal, management and peer networking techniques. Students will give presentations, and identify professional certification and credentials pertaining to a specific specialty area. Students will demonstrate willingness to keep up with organizational change.

TECH 3210 - Technology Management (Cr: 3)

Students will follow project management procedures in a manner that will apply to a research project. They will apply time management procedures, analyze costs, follow quality assurance procedures, and manage human resources. Students will use effective communications, perform risk analysis and identify tools to minimize risk. They will follow procurement procedures, identify project stages, integrate, implement and complete the project.

Fourth Year

TECH 4100 - Research and Innovation (Cr: 3)

Students will utilize research tools and resources to complete a research project. They will explain the history and meaning of knowledge, apply statistical analysis and innovative methodologies. Students will apply project management procedures and utilize sustainable practices to conduct research. They will document research in a format that will enable repeatable results and follow procedures to validate research. Students will identify a provable research project and write a proposal for development and implementation.

TECH 4110 - Technology Health and Safety (Cr: 3)

Students will identify regulatory bodies and their roles and Follow regulatory and legal requirements and policies. They will conduct safety meetings, maintain required safety records and investigate and report incidents. Students will develop a workplace health and safety plan and develop an Environment Management System (EMS). They will assess risk management and control techniques and apply hazard identification and control techniques. Students will apply corrective action with the intent of achieving improvement to safety and Identify particular hazards pertinent to specialty areas.

TECH 4200 - Environment and Sustainability (Cr: 3)

Students will identify environmental issues and areas that are affected, and identify regulatory bodies and their roles. They will describe sustainability, and identify renewable resources. Students will conduct cost-benefit analysis of sustainable practices and of alternate energy sources. They will develop procedures to select appropriate renewable resources and apply sustainable practices. Students will establish the lifecycle of products and describe sustainable methods to dispose of construction waste. They will describe First Nations issues and their affect on projects. Students will identify independent power producers, and stakeholder's issues and their impact on projects.

TECH 4210 - Capstone Project in Innovations and Leadership (Cr: 6)

Students will identify a partner with a need. They will establish a project team, develop a project proposal and obtain project approval from an advisory panel. Students will identify criteria for success, conduct research and apply critical thinking and problem solving techniques to make decisions. They will apply project management skills, identify required material and human resources and raise funds. Students will apply kaizen and BPR techniques for improvement in productivity and performance. They will evaluate the project using reflection techniques and document research in a format that will enable repeatable results. Students will present the completed project to stakeholders and partner with marketing students to promote the product/result.

Faculty C.V.'s

Core faculty are current permanent faculty members of Kwantlen Polytechnic University who have qualifications to teach the core courses of the Bachelor of Trades and Technology Innovation. All have extensive management experience in industry at the executive and senior level, as well as extensive instructional experience. Detailed resumes of core faculty can be made available to the Ministry of Advanced Education if required.

Dr. Paul Becker: B.Sc. An engineer with and MBA and a Ph.D. (Education, University of Saskatchewan) with senior executive experience at the vice-president or higher level in electrical generation, health care and large-scale facilities management.

Dr. Ali Hassanlou: B.Eng. Industrial, M.Eng. Industrial, M.Eng. (Iran) Engineering Management (Ottawa) Ph.D. in Management (Carleton) more than 20 years industry experience in operations management in industry and with Canada's National Research Council.

Dr. Xing Liu: B.Sc. Electrical Engineering, M.Sc. Electrical Engineering, Ph.D. (Wales) an expert on remote systems monitoring and control and the engineering applications of artificial intelligence. Current involvement includes wireless gas sensing systems.

Dr. Marcelo Machado: Bachelors in Industrial Engineering, Masters in Production Engineering and Systems, Ph.D. Knowledge Management Systems Systems, Japan Advanced Institute of Science and Technology (JAIST). Expert in knowledge management techniques: knowledge strategy, mapping, acquisition, taxonomy, and transfer, Dr. Marcelo has also taught Leadership within Kwantlen's Entrepreneurial Leadership BBA program.

Brad Anderson: B.Sc. Biochemistry., M.Sc. Medical Science, MBA (UBC) with experience in Pharmaceutical research and bio-technology industries as both a researcher, a project manager and a consultant on product development.

Catriona Eigenfeld: B.Sc. Accounting, MBA (DePaul University, Chicago), CMA formerly a corporate controller in the forestry industry. She has been engaged in the development and delivery of the Strategic Leadership component of the CMA program.

Ho Yee Low: MBA (City University, Seattle), CMA, held several senior management positions with Hughes Aircraft of Canada Limited, Air Traffic Control Systems, in international business development, Operations management, accounting and finance.

Ron Messer: B.Comm, MPA Systems (UVic), MBA Finance(UBC), CA, CMA. Formerly senior manager with BC Transmission Corporation, the Vancouver Airport Authority and four provincial ministries.

Duane Radcliffe: B.PhysEd., MBA in Human Resources Management (Royal Roads Univ.), formerly Director of Human Resources for Westport Innovations Inc. and the Westport - Cummins Westport Inc joint venture, a rapidly growing fuel cell start-up. He has considerable expertise in the selection, development and evaluation of teams working in rapidly changing knowledge based industry.

Mehdi Talwerdi: B.Sc. Computer Science and M.Sc. Computer Science and Geophysics (East Texas State University) holds extensive patents. As Project Manager for National Iranian Oil Company he oversaw the development of key systems controlling the major pipeline carrying petroleum from Iran, across Russia to Western Europe.

Vasile Zamfirescu: B. Comm. International Business, M.Sc. Industrial Engineering, MBA Operations and Marketing (U of A). Extensive industry experience at senior operations management and CEO leveling both Europe and North America.

The following four members of the Trades and Technology Faculty have certification in specific trades and technology areas complemented by a Masters in Education.

Tally Wade: M.Ed. with expertise in Public Safety Communications. Over 20 years experience within the operational communications field including positions of Communications Shift Supervisor and Operational Communications Officer with organizations such as police, fire departments and 911 call centres.

Mary Wilton: M.Ed. with Trades Qualification and expertise in Parts and Warehousing has contributed to the field of vocational education in her field of expertise and has taken a leadership role in the development of new and revised curriculum in the Parts Apprenticeship programs.

Rob Finlayson: M.Ed. with Red Seal and expertise in Metal Fabricating as well as holds a Welder level A ticket. He holds experience within his trade as well as assumes a leadership role in building industry partnerships.

Christina Heinrick: M.Ed. with Expertise in Computer Aided Design and Drafting (CADD) Technologies is also a graduate of Kwantlen's drafting program. She provided expertise in the development of the new CADD Technologies diploma that was implemented in 2007 and also assisted Kwantlen Facilities in design work.

Bachelor of Trades and Technology Innovation

Comments and Letters of Support

Brett Griffiths	Automotive Instructor from external Post-Secondary Institution
Adam Thorvaldson	Skills Canada BC, Executive Director
Martin Lim	Fraser Heights Secondary School, Tech Ed Instructor
Rick Higginson	Farrier Program Advisory Committee
Jim Mantei	VanGear, General Manager
Ian Vissers	Kwantlen student, Automotive Apprenticeship
Randy Callaghan	PCL Construction, Field Personnel Advisor
Brian Pichette	Dynamic Structures, Welding Supervisor/Inspector
Lloyd Stamm	Automotive Training Standards Organization (ATSO), Chief Executive Officer
Dave Mitchell	Dave Mitchell and Associates Ltd., President
Geoff Sale	ASTTBC
Lane Trotter	Fanshawe College, London ON
Doug Podetz	Industry Training Authority of BC (ITABC)



Date: October 18, 2009

Ms. Joanne Massey
Department Chair - CADD Technologies
Kwantlen Polytechnic University
12666 - 72nd Ave
Surrey, B.C.
V3W 2M8

Dear Ms. Massey:

Thank you for your recent email outlining your intent to create a Bachelor of Technology (BTech) degree that would allow a Red Seal journeyman to gain 60 post-secondary credits towards the completion of the program. I have reviewed your concept and believe it would be of incredible value to anyone who has, or is considering, a career in a Red Seal trade. I can see how this degree would expand opportunities for trades people and provide some with the needed pre-requisites to pursue graduate studies.

As someone who holds both a Bachelor of Science degree, and a Red Seal endorsement for the trade of Automotive Service Technician I can appreciate the extra time required and financial pressure incurred to obtain a degree. If the Bachelor of Technology degree existed when I decided to pursue my degree, I would have likely completed my program through Kwantlen Polytechnic University rather than UBC. I believe that your BTech program will encourage more people to enter red seal trades with the knowledge that the skills they have gained in their trade can also be applied towards a degree. I personally know the disappointment of realizing the four years I spent obtaining my Red Seal trade would not result in any credit towards a degree.

I believe the degree program you intend to create will not only benefit existing trades faculty by providing a shorter route to the needed pre-requisites for a graduate degree, but also provide incentive for future students to enroll in trades training with the secure knowledge that the completion of a degree is within reach in a short period of time. I commend you for developing a program that will have a positive impact on so many existing and future trades people.

Sincerely,

Brett Griffiths
Instructor - Automotive Technician Program

Skills Canada BC Chapter
3777 Kingsway
Burnaby, BC
V5H 3Z7
604-432-4229
Fax: 604-433-1241



November 30th, 2009

C/O: Joanne Massey
Dept Chair - CADD Technologies
College of Trades and Technologies
Kwantlen Polytechnic University
Phone: 604-598-6120

To whom it may concern,

Please accept this letter of support for the proposed Bachelor of Technology that Kwantlen University is developing.

Coming from the perspective of someone who has been through both Trade School and a University degree, it is my feeling that one of the fundamental reasons for students entering post-secondary educations and making the decision to not go into vocational education is the perception by students and parents alike, that there is no opportunity to go beyond and get higher levels of education. This is in part due to there being little opportunity for transfer credit. My personal experience includes re-doing identical courses for both my vocational education and my university degree.

It is a very large undertaking, but it is my hope that this is a first step towards extending transfer credit between trades/technology and academic programs.

With best regard,

A handwritten signature in black ink that reads "Adam Thorvaldson". The signature is fluid and cursive, with a long horizontal stroke at the end.

Adam Thorvaldson - BEd(TTED), Journeyperson
Executive Director
Skills Canada BC
3777 Kingsway
Burnaby, BC
Canada V5H 3Z7
Direct : 604-432-4362
Fax: 604-433-1241
adam@skillscanada.bc.ca
www.skillscanada.bc.ca
www.skillscanada.com
www.worldskills.org



FRASER HEIGHTS SECONDARY
16060 – 108th Avenue
Surrey, B.C., V4N 1M1
Telephone: 582-9231 Fax: 582-9268

Kwantlen Polytechnic University
12666 - 72nd Ave
Surrey, B.C.
V3W 2M8

Ms. Joanne Massey
Department Chair – CADD Technologies

Dear Ms Massey:

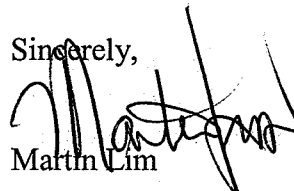
It was very nice to see you out at the BCTEA Conference held in October in Maple Ridge. I found your presentation outlining your intent to create a Bachelor of Technology Degree that would allow a Red Seal journey person to gain 60 post-secondary credits towards the completion of the program very interesting.

I have talked to several other shop teachers about your idea, and believe it would be of incredible value to our students considering a career in trades. The option to complete a Degree may help to encourage students and their parents to consider a trade as a career. Also, having a Degree option in the trade area may help us increase our enrolment in our secondary shop classes. The perceptions of trades may change if your Programme goes ahead.

I have also talked to our school counsellors, and they also agree that your Degree Programme would be a benefit to students. As a local community University, you offer many other benefits that other institutions do not. Students could continue their education without having some of the other associated costs.

Please keep us informed as to the status of this Programme. We hope that it receives approval from your Senate.

Sincerely,


Martin Lim

Nov. 28/09.

Kwantlen Polytechnic University
12666 – 72nd Ave.
Surrey, B.C. V3W 2M8

Re: Proposed Bachelor of Technology

Dear Joanne Massey;

I'm writing this letter to express my support for the proposed Bachelor of Technology Degree.

The development of this degree program will create an opportunity for Trade program graduates which have never existed before. As it stands today the only option available to a trade graduate is to return to university and spend another four years securing a degree.

It may only be a small percentage of trade graduates that decide to go on but it is very important that this option is available. By offering this program you will open a door for continuing professional development for these graduates.

I wish you continued success in bringing this program to fruition.

Sincerely

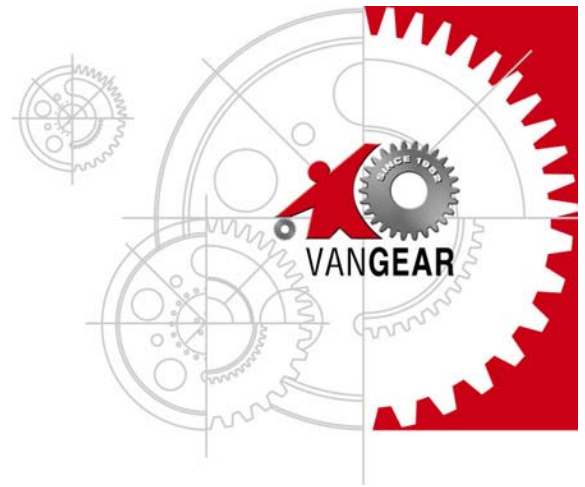


Rick G. Higginson

CJF. Dip. T. Forestry, Dip. T. Fisheries, Wildlife and Parks

VANGEAR

BUILDING TRUST ONE GEAR AT A TIME
SINCE 1952



November 23, 2009

Kwantlen Polytechnic University
12666 - 72nd Ave
Surrey, B.C.
V3W 2M8

Dear Ms. Massey,

Thank you for your recent information regarding the intent to create a Bachelor of Technology (BTech) degree at the recent program advisory committee meetings. I have reviewed your concept and believe it would be very valuable to anyone who has, or is considering, a career in a Red Seal trade. I can see how this degree would expand opportunities for trades people and provide some with the needed prerequisites to pursue graduate studies.

Our company VanGear has many Kwantlen graduates that have served their apprenticeship and have received their red seal certificates in their chosen trades. This will give them an opportunity for further growth within our organization.

As someone who holds both a Red Seal endorsement for the trade of Machinist and Millwright I can appreciate the extra time required to obtain a degree. If the Bachelor of Technology degree exists and I decide to pursue my degree, I would likely complete my program through Kwantlen Polytechnic University rather than UBC. I believe that your BTech program will encourage more people to enter Red Seal trades with the knowledge that the skills they have gained in their trade can also be applied towards a degree. I would be disappointed if the four years I spent obtaining my Red Seal trade would not result in any credit towards a degree.

I believe the proposed degree program would provide incentive for future students to enroll in trades training with the secure knowledge that the completion of a degree is within reach in a short period of time. I commend you for developing a program that will have a positive impact on so many existing and future trades people.

Sincerely,

Jim Mantei



14551 BURROWS ROAD
RICHMOND, BRITISH COLUMBIA
CANADA, V6V 1K9



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Kwantlen Polytechnic University
12666-72nd Ave
Surrey, BC
V3W 2M8

Proposed Bachelor of Technology degree

To whom it may concern,

Red Seal certification in automotive is something I am about to acquire. I am currently attending automotive level four at Kwantlen Polytechnic University – Cloverdale Campus. I also have my drafting certificate as well as many other prerequisites required to be accepted to the proposed Bachelor of Technology degree program. The pursuit of an advanced career in automotive is something I am constantly working toward. I have also considered a higher education leading to careers not related to trades. The proposed Bachelor of Technology degree program would be an asset in whatever direction I choose.

Most skilled trades require over four years of commitment before certification. This commitment process could also be referred to as an investment. It is very demanding in that trades people invest tremendous amounts of effort and funds compared to what is received. Many trades also appear to have limitations at which there is no further progression. Potential trades people may decide against entry into a trade based solely on this seemingly lacking investment returns. Credits toward a bachelor's degree would surely stimulate trades entry.

We as trades people have and will continue to invest in ourselves. Most cannot afford to return to a college or university for 4 or 5 more years of education for a bachelor's degree. Many trades people will require a higher level of education to achieve their goals. I would be overwhelmed with enthusiasm if my Red Seal trade certification along with as little as 5 semesters granted the equivalent of four or five college or university years in the form of a bachelor's degree.

I strongly believe with acceptance and development of this proposed program, current and future trades people will benefit. I would like to thank all who are involved with developing this proposal for your efforts. I would also like to thank anyone with future involvement in advance.

Sincerely



Ian Vissers



CONSTRUCTION LEADERS



December 3, 2009

Via: Mail

Kwantlen Polytechnic University
12666 - 72nd Ave,
Surrey, BC V3W 2M8

To Whom It May Concern;

Re: PROPOSED BACHELOR OF TECHNOLOGY

Thank you for your recent email outlining your intent to create a Bachelor of Technology (BTech) degree that would allow a Red Seal journeyman to gain 60 post-secondary credits towards the completion of the program. I have reviewed your concept and believe it would be of incredible value to anyone who has, or is considering, a career in a Red Seal trade. I can see how this degree would expand opportunities for trades people and provide some with the needed prerequisites to pursue graduate studies.

As someone who holds a Red Seal endorsement for the trade of Carpentry, I can appreciate the extra time required and financial pressure incurred to obtain a certification.

I believe that the direction of this degree, with relevant trade experience as part of the recognized background, will add value to the employer and to that of the credential. I commend you for developing a program that will have a positive impact on so many existing and future trades people.

If you should have any questions, please do not hesitate to contact the undersigned.

Yours truly,

PCL CONSTRUCTORS WESTCOAST INC.

Randy Callaghan
Field Personnel Advisor
WRITER'S DIRECT LINE 604-241-5346

RJC/ss

PCL CONSTRUCTORS WESTCOAST INC.

#310 - 13911 Wireless Way, Richmond, BC V6V 3B9
Telephone: (604) 241-5200 ☎ Fax: (604) 241-5301



December 15, 2009

Kwantlen Polytechnic University
12666 – 72nd Ave,
Surrey, BC V3W 2M8

To Whom It May Concern:

I am writing this letter to give my full support to Kwantlen Polytechnic University's proposed Bachelor of Technology Degree Program. I believe it will be of great value to any Red Seal Journey Person who would like to advance their career. The fact that they would receive post secondary credits for time spent obtaining their Red Seal is most encouraging. I also believe it will lead to more people going into the trades knowing they can receive a degree in their field.

Yours truly,

Brian Pichette
Welding Supervisor/ Inspector
Dynamic Structures
604 468-7617



Automotive Training Standards Organization

Unit # 1 - 8980 Fraserwood Court
Burnaby, BC, Canada V5J 5H7
Telephone (604) 419-3626
Fax (604) 419-0299
www.autoapprentice.com

December 1, 2009

Kwantlen Polytechnic University
12666 - 72nd Ave
Surrey, B.C.
V3W 2M8

To Whom It May Concern

Re: Bachelor of Technology Degree

The creation of a Bachelor of Technology (BTech) degree that recognizes the educational value of a Red Seal certification as 60 post-secondary credits towards that degree is truly supporting the concept of lifelong learning.

It is appropriate that a degree in technology would have as its basis, actual experience as a technician. This recognition will encourage more people to consider entering red seal trades knowing that the skills they have gained in their trade can be applied towards gaining a degree. For some trades people this will also provide opportunities to pursue graduate studies.

As a member of both the Automotive Service Technician and Partsperson PACs at Kwantlen, I am fully in favour of developing a program that will have a positive impact on so many existing and future tradespeople.

Sincerely,

Lloyd Stamm
Chief Executive Officer

DAVE MITCHELL and ASSOCIATES LTD.

P.O. Box 64618
1942 Como Lake Avenue
Coquitlam, B.C. V3J 7V7
Canada

Phone: (604) 812-8951
Fax: (604) 552-8951
Email: dwmitchell@telus.net



January 7, 2010

Kwantlen Polytechnic University
12666 - 72nd Ave,
Surrey, BC
V3W 2M8

Re: Proposed Bachelor of Technology

To Whom It May Concern:

I am writing to you both as a member of the Public Safety Communications Advisory Committee as well as an owner of a communications consulting firm to express my support for the proposed Bachelor of Technology degree. It is my strong belief that enhancing the opportunities for individuals working in the technology field to achieve additional accreditation will enhance their ability to perform work of greater value. In addition to enhancing the skill set for those working in this field, the addition of a certification such as being proposed by Kwantlen Polytechnic University will increase their visibility and employability by firms such as ours.

Our consulting firm is employed in much of Canada working principally with emergency services with regard to technology procurement and implementation as well as performance audits and quality assurance programs. In the ten years our company has been operating, the demand for services has increased in complexity and scale and this demands an ever increasing level of training and experience.

At the same time, the issues of ever-tightening standards of services and a greater scrutiny to ensure value for money require our firm and our consultants to continually broaden their skills. This requires a great deal more ability to research, write and present ideas and this broader suite of knowledge is something that I feel is enhanced with a degree program. Quite simply,

students that graduate with these skills will succeed to a higher degree and will deliver better value.

Thank you for considering this program, and if it would be helpful, I would be happy to speak with you further.

Yours truly,

A handwritten signature in black ink, appearing to read "Dave Mitchell". The signature is written in a cursive style with a prominent horizontal line across the top.

Dave Mitchell
President

To: "Joanne Massey" <Joanne.Massey@kwantlen.ca>
From: "Geoff Sale" <geoffsale@uniserve.com>
Date: 06/09/2010 10:19AM
Subject: RE: BTech - Please review attached, and Next Meeting Date

Hi Joanne!

I've been looking more closely at the structure of this program since you called, and I have a couple of questions re. the flowchart you included with the last email. To be better informed re. the likelihood of this program qualifying for a National Accreditation through CTAB (or whatever re-incarnation is in place when the time comes), I will need to see more details about the A), B) and C) options which comprise the first two years. I'm not entirely sure that these three options are 'OR', not 'AND', as I have some reservations re. the equivalency of 20 weeks of Red Seal Trade class time vs. 60 approved post-secondary credits. I had believed that Red Seal trades required 4 years, with at least 10 classroom weeks per year. So, right now I'm more comfortable with B) and C) than I am with A), although the Diploma at the end of year 2 may be a stretch if A) is indeed a complete option in and of itself.

Educational Agencies are challenged when trying to show that any program is CTAB-accreditable if all students do not take the same basket of courses which result in a graduation, be it diploma or degree. I can see problems with the less-technical trades (eg, carpentry) being included in the mix.

All that said, we may still have a case for an accreditation at the Technician level, given that some technical strengths are provided by at least some of the trades: Electrical, Mechanical, etc. We will need to fully review the whole program against the [NTB](#) to be sure that we have a case for CTAB to consider an application, and we should try to do that well prior to the PAC meeting to ensure you and I are on the same page!

Lastly, I may just apply for this BTech program myself!!! I've always meant to get a degree, having started out at CMR de St. Jean with the RCN in the mid-1960's and completing nearly 3 years of a 5 yr degree in EE, quitting before I got to RMC for the last 2 years. I then went to night school with BCIT for 12 yrs and got a Diploma in 'Industrial Management', which actually didn't exist as a program at BCIT or anywhere else in 1985, and my certificate says 'In Accordance with National Standards', of which there were none at the time! But I did get the first Governor General's Silver Medal for Part Time Studies Graduates from BCIT, so it wasn't a total loss!! And it qualified me to apply to become a member of (then) SETBC, starting a long and rewarding membership experience!

Thanks

Geoff

Geoff Sale, ASCT
Past Chair, Canadian Technology Accreditation Board
Canadian Council of Technicians and Technologists (Ottawa, Ont.)
Manager, Internationally Trained Professionals Program,
Applied Science Technologists and Technicians of BC
geoffsale@uniserve.com
H 604 521-5059 C 604 488-4559

To: Joanne Massey <Joanne.Massey@kwantlen.ca>
From: Lane Trotter <ltrotter@fanshawec.ca>
Date: 08/15/2010 01:21PM
Subject: Re: (From Joanne Deno) - Bachelor Degree Proposal

Joanne,

I have had a chance to review the Program Concept document for the Bachelor of Technology in Innovation and Leadership.

Here are a couple of observations:

- The proposal has similarities to BCIT's Bachelor of Technology in Technology Management in the program structure and the access into the degree portion (or degree completion route) although this proposal is specifically aimed at individuals with a trades background and

BCIT's program provides a route for those individuals with a trades qualification who have a diploma.

- Providing holders of a trades Read Seal IP, Trades Certificate or an individual with 60 post secondary credits to have a route to a degree is innovative and breaks down barriers that create "siloization" between trades and professional careers. Alasdair McIntyre (

MacIntyre, A. (1997). The Nature of the Virtues. In R. Crisp and M. Slote (Eds.), *Virtue Ethics* (pp. 18-40). Oxford: Oxford University Press.) is very clear that enhancing professional practice enriches society as long as that practice has appropriate depth and breadth.

One other point that I would like to raise is around the structure shown in the Flow Chart. The Flow Chart itself is fine, but the question that the Flow Chart raises is around the equivalency of the three groups of perspective groups eligible for entry into the third year of the degree. BCIT indicates that for the Bachelor of Technology in Technology Management, applicants must have a diploma. This provides the point of equivalency between trades and technology based program credentials and is based on the skills, abilities and knowledge that a diploma holder should possess. This latter point needs to be addressed to show the equivalency.

I hope this helps.

Cheers,

Lane

Lane D. Trotter, Ed.D.

Senior Vice President, Academic
Fanshawe College
1001 Fanshawe College Blvd.
P.O. Box 7005
London, ON N5Y 5R6
(519) 452-4462
ltrotter@fanshawec.ca

REVIEW SUMMARY
ON
KWANTLEN POLYTECHNIC UNIVERSITY
BACHELOR OF TECHNOLOGY IN INNOVATION & LEADERSHIP

by

Doug Podetz
Industry Training Authority
Lead, Program Standards

This program concept document review will highlight key factors related to the development and delivery of a Bachelor of Technology in Innovation & Leadership at Kwantlen Polytechnic University. This review paper will discuss factors within the document which have provided adequate written material to support a degree program; as well the paper will also address key issues which may require changes or additional information.

A numbers of factors contribute to the success or failure of a technology degree program. Based upon my experience in trades, technology, undergraduate and graduate programs I will outline what I see as key factors which should be considered when augmenting a university degree program with technology.

The term “success” can be applied in many different contexts. For example, success from the Oxford Canadian Dictionary is defined as “the accomplishment of an aim; the attainment of wealth, fame or position; a thing or person that turns out well.” In this context the concept of success will refer to the ability to sustain the degree program.

Sustaining a Degree program

The sustainability of a program is based on the synergy involving these key factors:

- Enrollment
- Program names
- Program content
- Course descriptions, course credit and degree requirements
- Community support
- Employment
- Cross credit towards other programs
- Course content relates to an industry need
- Availability of teaching faculty and teaching qualifications related to the program
- Prior credit and cross credit from other programs
- Internal support within the university

The above factors are not listed in any priority of importance but are key factors when considering the development, planning, implementation, maintenance and support of a degree program.

The program concept document which I reviewed addresses many of the above noted key factors. The document accomplishes a comprehensive explanation on many of these factors. There are also factors which may require additional content in order to ensure the reviewer that the proposal has a high degree of sustainability.

Setting up a degree program requires long term planning, implementation, maintenance, as well as industry support. Sustainability of a degree program must demonstrate the potential to attract learners and address labour market demands. Evidence must be provided to indicate that there will be an audience to enter the program year after year. A large percentage of candidates which enter the program must be retained over the duration of the degree program. Sustainability must also demonstrate the ability of having the work environment support the graduates. There must be businesses within the community, British Columbia, Canada, as well as, internationally who are willing to hire the graduates. Graduates must have an adequate knowledge and skill level to adapt to the work environment in an effective and efficient manner. From a business perspective sustainability is captured through having graduates who are adaptable, able to anticipate and manage variability and earning a profit for the employer.

The greatest influence on sustainability is whether employers are attracted to hiring candidates who graduate from this proposed program. Although I did not get a chance to review the analysis report (Appendix F) I would judge that based on the background experiences related to trade certification the majority of candidates would be in high demand for managerial employment positions.

The reviewers of this paper also need to understand what is driving the need for this program. This proposed program falls into a category of anticipated technological demand. Industry has stated on many occasions that candidates having a trade background, technological and managerial experiences are in high demand.

The strength of this model is it recognizes the level of importance based on the candidate's successes in completing a certification in the trades. The proposed program structure provides a level of recognition through trade course credit towards a technology degree program. Designing a degree program which captures candidates who have these experiences is essential in achieving the intended vision of this degree program. Canadian society has in the past not recognized the value in providing transitional educational opportunities for individuals who have completed trade certifications. Accepting these experiences as essential elements will produce a highly qualified managerial leader in our community. This proposal emphasizes the importance of having a trade background prior to enrolling in the program. The design structure outlined in the proposal should be noted as a strong factor in supporting the sustainability of the program.

Kwantlen services the communities of Richmond, Delta, Surrey, Langley and Maple Ridge. Kwantlen has the potential to attract candidates from other parts of Canada as well. Without students, a program cannot operate. Program developers generally agree the greatest problem facing new programs is the recruitment of qualified

candidates. Kwantlen has access to several thousand certified trade candidates throughout Canada. Keep in mind good marketing practices are a key element to program growth.

The name of the program is also a crucial element when considering the sustainability of this program. Usually candidates glance and acquire their first impression from the title. Using the title Bachelor of Technology degree suits the vision of the program and is appropriate wording for the title. The additional wording in the title – “Innovation and Leadership” should be reviewed. It is my belief a phrase after the Bachelor of Technology or a word/phrase prior to “Technology” which is specific to the intended vision of the degree program is required. Title explanations should be specific and refer to the intended outcome of the program. General wording in a title tends to confuse readers. A phrase or word capturing some aspect of management would provide stronger support to sustaining the program. Using the word “Leadership” in the title is attractive and should remain in the title.

The choices of program courses are excellent and will be congruent with the intended vision of the program. I believe the intended vision of the program is to provide the necessary knowledge base so candidates are successful in management roles within the technology environment. There is one additional element to be considering when developing this program. Management training should encompass the abilities to understand and perform business accounting. I would recommend an additional course or courses from the School of Business which would provide a knowledge base that would address the intended vision of the program.

Uses of existing programs from other departments, uses of faculty who have acquired training in other departments are all excellent opportunities to increase the degree of sustainability. All of these factors are addressed in the proposal.

Concluding Remarks

In conclusion, apart from some recommended changes I would encourage strong support for the Bachelor of Technology degree program at Kwantlen Polytechnic University.