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ATTENTION	Senate	DATE	February 11, 2015
FROM	Jon Driver, Vice-President, Academic and Provost, and Chair, SCUP	PAGES	1/1
RE:	Beedie School of Business: Full Program Proposal for a Certificate in Innovation and Entrepreneurship (SCUP 15-03)		

At its February 4, 2015 meeting, SCUP reviewed and approved the Full Program Proposal for a Certificate in Innovation and Entrepreneurship within the Beedie School of Business, effective Fall 2015.

Motion:

That Senate approve and recommend to the Board of Governors the Full Program Proposal for a Certificate in Innovation and Entrepreneurship within the Beedie School of Business, effective Fall 2015.

c: A. Gemino
S. Lubik



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MEMORANDUM

ATTENTION	Senate Committee on University Priorities	DATE	December 5, 2014
FROM	Gordon Myers, Chair Senate Committee on Undergraduate Studies	PAGES	1/1
RE:	Beedie School of Business (SCUS 14-52)		

A handwritten signature in black ink, appearing to read 'Gordon Myers', is written over the signature line of the memorandum.

Action undertaken by the Senate Committee on Undergraduate Studies at its meeting of December 4, 2014, gives rise to the following recommendations:

Motion

That SCUP approve and recommend to Senate the Full Program Proposal for the Certificate in Innovation and Entrepreneurship within the Beedie School of Business.

The relevant documentation for review by SCUP is attached.



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MEMORANDUM

ATTENTION Beedie Undergraduate Curriculum Committee
FROM Andrew Gemino
RE: **Full Program Proposal for the Certificate in Innovation and Entrepreneurship**
DATE November 19, 2014

The Beedie School of Business, in collaboration with the Faculties of Health Science; Science; Applied Science (Computer Science & Mechatronics Systems Engineering); Communications, Arts & Technology (School of Interactive Arts and Technology) and Environment, proposes the creation of the Certificate in Innovation and Entrepreneurship. The Full Program Proposal (FPP) was developed after the initial approval of the NOI version and upon further consultation by the faculties listed. Below, please find a list of revisions and additions to the NOI in the creation of the FPP (these amendments are highlighted in yellow in the FPP document):

- 1) Changing/adding some of the course therein to ensure appropriate innovation and entrepreneurship content and courses that can support additional seats. These courses have been approved by their home faculties.
- 2) Removing "other accepted capstones" from course alternatives, as the others under consideration are currently still in development
- 3) Adding contact to check whether ENV 495 is part of Change Lab
- 4) Clarifying that while the fee for the courses included will not change, some courses have premium fees because of the faculty in which they are housed.
- 5) Clarifying how students will enter into the certificate.
- 6) Confirming the Interdisciplinary Innovation and Entrepreneurship Council (IEC) as the governing structure and the Beedie UCC as the means for amending the course list.
- 7) Gaining letters of support from the Deans or Chairs of partnering faculties/schools (letters included).


Andrew Gemino, Associate Dean
Beedie School of Business

Full Proposal: Certificate in Innovation & Entrepreneurship (CIE)
Beedie School of Business & Partners
Simon Fraser University
November 2014

Executive Summary

The Beedie School of Business, in collaboration with the Schools/Faculties of Applied Sciences; Communications, Arts and Technologies; Environment, Science, and Health Science with the support of SFU's Venture Connection Student Incubator, seeks approval of a *Certificate Innovation & Entrepreneurship* for undergraduate students across all faculties at SFU. There is significant demand for and participation by non-business students for entrepreneurship courses. A certificate program which enables interdisciplinary student teams will provide SFU's students a richer, more realistic and novel innovation and entrepreneurship experience. It is important to note that innovation and entrepreneurship has become a much broader concept than merely starting small firms; instead, we build on Peter Drucker's concept of innovation as "the effort to create purposeful, focused change in an enterprise's economic or social potential"¹ and Harvard's definition of entrepreneurship, "the pursuit of opportunity without regard to resources currently controlled"².

The certificate program will be fulfilled through a combination of existing core Beedie courses and a selection of existing innovation and entrepreneurial courses from other disciplines at SFU, along with a new course, BUS 238 *Introduction to Entrepreneurship and Innovation*, which will function as the entry point for non-business students and the starting place to begin building interdisciplinary collaboration, respect and appreciation³.

Context

The Canadian and B.C. governments are actively encouraging post-secondary institutions to deliver entrepreneurship programs^{4, 5}. Entrepreneurship and innovation training develops "renewable competencies" such as creativity and adaptability, team work and collaboration skills, communication and implementation; which prepare students for an employment landscape that is rapidly changing⁶. These skills have been found to lead to much greater ambition and productivity⁷. Even if the students choose not to immediately

¹http://ogsp.typepad.com/focus_or_die_ogsp/files/drucker_1985_the_discipline_of_innovation.pdf

² <http://www.inc.com/eric-schurenberg/the-best-definition-of-entepreneurship.html#ixzz30rXI1Sva>

³ This certificate has significant overlap with the current Beedie Entrepreneurship and Innovation (E&I) concentration, therefore Beedie students will be allowed either a concentration in business or the certificate, but not both. Electing to pursue the certificate requires and encourages Beedie students to take at least 12 units outside of their home department/faculty.

⁴ NSERC (2013) The Government of Canada Committed to Research and Innovation: Minister of State Rickford Announces Funding to Top Academics. Accessed from: http://www.nserc-crsng.gc.ca/Media-Media/NewsRelease-CommuniqueDePresse_eng.asp?ID=421

⁵ B.C. Jobs Plan (2012) Canada Starts Here. Accessed from: <http://www.bcjobsplan.ca/wp-content/uploads/BC-Jobs-Plan-PDF.pdf>

⁶ Miller (2013) The Rise of the Generalists. Globe and Mail Canadian University Report. October. 19-13

⁷ <http://business.financialpost.com/2012/08/20/why-next-36-matters-for-all-canadian-entrepreneurs/>

become entrepreneurs, The Centre for Business Innovation (CBI), part of the Conference Board of Canada, indicates these are critical skills looked for in employees⁸.

Realistic, practical entrepreneurship education requires an interdisciplinary approach. To be effective in innovative and entrepreneurial teams, students need to learn how to work with students from other disciplines⁹. Many of the world's top universities including Stanford, Babson College and the University of Cambridge have already launched highly successful interdisciplinary entrepreneurship and innovation programs. Interdisciplinary entrepreneurship initiatives at SFU, such as Venture Connection (Student Entrepreneurship Incubator), RADIUS (Social Entrepreneurship and Innovation), Ken Spencer Student Incubator (Mechatronics and Entrepreneurship) and Semester in Innovation (Business, Computer Science and Design), are examples of the foundational work that has already begun. However, access to the majority of SFU's entrepreneurship and innovation courses is currently limited to Beedie students.

The objective of the proposed certificate is thus to provide undergraduate students from all disciplines the opportunity to gain practical, realistic training in interdisciplinary entrepreneurship. This experience will mean that students from across SFU will be better equipped to seize opportunities in an increasingly competitive job market or to create and develop their own opportunities with appropriate teams.

1. Credential to be awarded, including the level and category of the degree and the specific discipline or field of study;

Certificate in Innovation & Entrepreneurship

2. Location of program, including justification for program site

SFU, Surrey and Burnaby campuses, based on course offerings.

3. Faculty(ies), Department(s), or School(s) offering the certificate;

The Beedie School of Business in partnership with the Faculty of Communications, Arts and Technology (FCAT), Faculty of Applied Sciences (FAS), Faculty of Science, Faculty of Environment (FENV) and Faculty of Health Sciences (FHS).

4. Anticipated program start date

Fall 2015

5. Description of proposed program

a) Aims, goals and/or objectives

The objective of the proposed certificate is to provide undergraduate students from across SFU with a structured means to develop practical, entrepreneurial and

⁸ <http://www.conferenceboard.ca/cbi/innovationskills.aspx>

⁹ Etzkowitz, H. et al. (2000) "The Future of the university and the university of the future: the evolution of ivory tower to entrepreneurial paradigm". Research Policy. 29 (2) 313-330.

innovative skills within multidisciplinary teams¹⁰. Students who earn the Certificate in Innovation and Entrepreneurship will be better equipped to seize opportunities in an increasingly competitive job market or to create and develop their own opportunities with appropriate teams.

b) Anticipated contribution to the mandate and strategic plan of the institution

The proposed certificate is an innovative, cross faculty initiative that addresses the demand for increased entrepreneurial activity in the BC and Canadian landscapes. The certificate provides a significant, meaningful and challenging experiential learning opportunity for undergrad students. This experience will enable students to understand and be able to navigate the challenges in engaging in entrepreneurial opportunities and developing successful startups.^{11 12}

This certificate clearly aligns with SFU's Academic Plan to "meet the challenge of preparing students as engaged citizens and for new kinds of career"(pg.1) and two of the President's Goals and Objectives 2013-14.

1. "Engaging students: To equip SFU students with the knowledge, skills, and experiences that prepare them for life in an ever-changing and challenging world"¹³: This allows students to engage across disciplines and offers an innovative and practical disciplinary program that has the potential to create significant economic opportunities for its graduates.
2. "Engaging Communities: To be Canada's most community-engaged research university⁸": Many of the courses required for this certificate require students to leave the classroom setting and interact with the community through mentorship, market data-collection, concept validation and expert interviews. This year alone, the Beedie undergraduate Entrepreneurship and Innovation Concentration has engaged over 35 industry mentors and experts and the participation of the City of Surrey, City Studio, VanCity, Canadian Youth Business Foundation (CYBF), Wave Front Incubator and BCTIA's Centre for Growth (C4G).

c) Target audience

The target audience is undergraduate students from all SFU faculties.

¹⁰ Not all E&I courses require groups for their students, so this cannot be guaranteed in every class but as most entrepreneurship courses are team-based and we are aiming for 50% non-business students in E&I courses; therefore, it is assumed that most teams will have to be interdisciplinary. Students complementary cross-disciplinary programs which count toward the certificate, like Change Lab (Beedie and Environment) and Tech e@sfu (Beedie and MSE) already require this as part of their curriculum.

¹¹ We use startup as a broad, inclusive term which means "an institution designed to create something new under conditions of extreme uncertainty". Ries, E. (2011) The Lean Startup

¹² This certificate will not compete directly with joint majors, as it allows students to develop entrepreneurship skills but does not require or produce the depth and breadth to the full bodies of knowledge as double majors do. It also creates teams rather than all skills in all students.

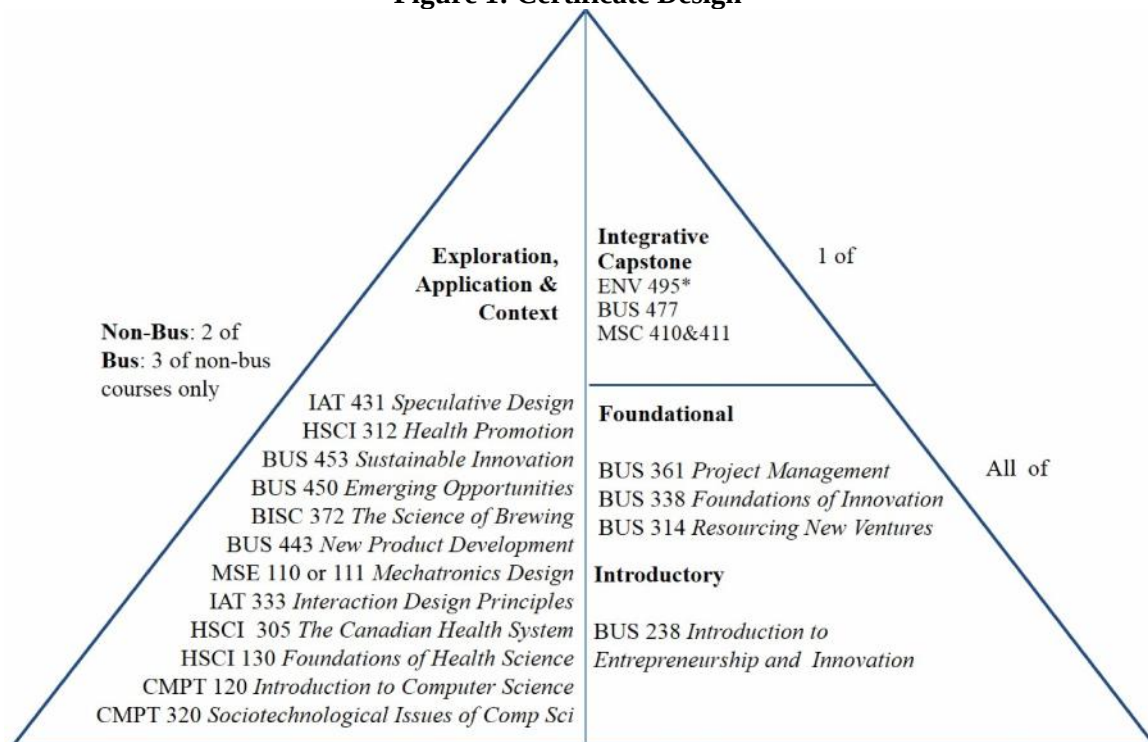
¹³ <http://www.sfu.ca/pres/reports-initiatives/goals13-14.html>

d) Content and summary of requirements for graduation

The Entrepreneurship and Innovation (E&I) concentration in the Faculty of Business Administration has recently gone through a significant redesign (in 2014) that has resulted in changes to the curriculum. These changes include the introduction of a 200-level entrepreneurship course, BUS 238 *Introduction to Entrepreneurship and Innovation*, which is open to all undergraduate students from across the university and is a prerequisite to allow non-business students into the 300-level Business E&I courses. BUS 338 *Foundations of Innovation*, BUS 361 *Project Management* and BUS 314 *Resourcing New Ventures*, fit well as foundational courses in the Entrepreneurship and Innovation Certificate.

Figure 1 shows how students in the certificate will then build from introductory and foundational knowledge to exploratory, applied and context-oriented electives from across the university, to an applied, project-based course that allows for the integration of all of the skills and knowledge they have acquired. We refer to this as an integrative capstone experience.

Figure 1: Certificate Design¹⁴



* When part of Change Lab

Introductory & Foundational Courses

BUS 238 provides an introduction to basic innovation and entrepreneurship concepts and provides opportunities for students from different disciplines to interact and partner on

¹⁴ These courses have been discussed and selected with their home faculties.

class projects. BUS 238 will also provide the gateway for non-business students to enter the certificate¹⁵.

BUS 338, BUS 314 and BUS 361 provide foundational knowledge for developing a new offering and launching a start-up. Sections of the foundational business courses will be open to students who have taken BUS 238. This will provide a port of discover and entry into entrepreneurship to non-business students.

Electives: Exploration, Application and Context

A range of elective courses from Beedie, Faculty of Health Sciences, Faculty of Communication, Arts and Technology, Faculty of Applied Sciences, Faculty of Science and Faculty of Environment will allow students to gain experience, application and context in other fields. Courses that may be considered to fit the requirements of these electives would fall into one or more of the following categories:

Application:

In these courses, students develop a product, service or solution for an identified user or societal need. For example:

ENV 495/BUS 453: Change Lab

IAT 431: Speculative Design

Exploration & Context:

As this certificate is designed to provide students with the experience of learning from different perspectives and exploring the fields of others, these courses expose students to an in-depth look at an industry, preferably outside their own. For example:

BISC 372 The Science of Brewing

BUS 450 Managing Emerging Technologies¹⁶

HSCI 305 The Canadian Health System

Beedie students will be required to take their electives outside of the business faculty. They will also have to take three, rather than the two electives required for students from other faculties. This is to ensure that business students will have proportioned experience outside their home faculty as is required of non-business students pursuing the certificate.

¹⁵ On successful completion of BUS 238, they will have the option to declare that they are pursuing the I&E certificate, which will then be marked in the registration system (similar to the Business Minor program), opening the rest of the E&I courses to them automatically. Non-business seats will be held open in 300 level classes to ensure the certificate program is available to those that choose to pursue it.

¹⁶ This course focuses on the application of an emerging technology such as health tech solutions or social media.

Capstone: Integrative, experiential final course

An entrepreneurial, team-based capstone experience provides a final integrative experience. If a capstone is not available in the student's home faculty, they will have the prerequisites to take BUS 477, so will be able to complete the certificate¹⁷.

Certificate Courses

The following are the proposed courses, which could be completed for a minimum of 22 credits (table 1). Additional appropriate courses may be added or removed after further discussion with partner faculties (see section e for details).

Table 1: Certificate Course Requirements

Required	Course	Hrs	Concentration/ School	Course Name
All of	BUS 238	3	Entrepreneurship & Innovation (E&I)	Introduction to Entrepreneurship and Innovation
	BUS 314	3	E&I	Resourcing New Ventures
	BUS 338	3	E&I	Foundations of Innovation
	BUS 361 (or equivalent)	3	MIS/E&I/Other faculty	Project Management (or equivalent)
2 of these courses (or 3 non-business courses for business students) ¹⁸	BUS 443	4	E&I/MRK	New Product Development
	BUS 453	3	E&I	Sustainable Innovation
	MSE 110 or 111	3	MSE	Mechatronics Design I
	IAT 333	3	IAT	Interaction Design Principles
	IAT 431	3	IAT	Speculative Design
	BISC 372	3	BISC	The Science of Brewing
	HSCI 130	4	FHS	Foundations of Health Science
	HSCI 305	3	FHS	The Canadian Health System
	HSCI 312	3	FHS	Health Promotion: Individuals and Communities
	CMPT 120	3	CMPT	Introduction to Computer Science and Programming 1
	CMPT 320	3	CMPT	Sociotechnological Issues of Comp Sci
1 of	BUS 477	4	E&I	Startup Experience
	ENV 495 ¹⁹	8	ENV	Environmental Capstone
	MSE 410&411	8	MSE	Capstone Design Technical Project

¹⁷ Whether the capstone or electives are appropriate and should be counted toward the certificate will be decided by an interdisciplinary council of SFU faculty (see section e).

¹⁸ It should be noted that the above requires Beedie students pursuing the certificate to take three electives from outside of their home faculty in order to ensure that they gain equal experience as non-business students do, outside of their home faculty. Non-business students must complete at least three core BUS courses in the certificate already. Having business students complete at least 3 non-business electives would counter-balance the core business courses for exposure outside of the business faculty.

¹⁹ When part of Change Lab Program

Writing, Quantitative and Breadth Requirements

The proposed certificate will be offered as a complement to the degrees offered within the Beedie School of Business (BBA) and the undergraduate programs of other faculties. As such, all certificate students will satisfy SFU's Writing, Quantitative, and Breadth requirements as part of their normal graduation requirements for their degree. The certificate will support the completion of these requirements, as for instance, Beedie students who choose to complete the certificate are required to take 9 units outside of business. As well, BUS 238 is designated as a breadth social-science (B-Soc). For students outside of business, BUS 238 would count toward the specified breadth, or elective requirements.

Co-Operative Education and the Experiential Component

Experiential learning is an important part of the proposed certificate and the project-based capstone course is a central part of the program. Within many of these courses, students will be exposed to service learning (BUS 361: Project Management²⁰, working with real early-stage startups to develop a commercialization strategy (BUS 338) and creating and executing their own ideas through multiple electives and a capstone; however, official co-op terms are not required for completion of this certificate²¹.

e) Certificate Governance

It is planned that this certificate will be overseen by the SFU Interdisciplinary Innovation and Entrepreneurship Council (IIEC)²². As courses are revised or new courses are developed that fit with the criteria outlined above, the IIEC will have the authority to add them to the list of accepted courses. Any course changes will be brought forward through the appropriate Undergraduate Curriculum Committee.

f) Delivery method

Since the program is based upon existing courses and programs, the standard delivery methods already in place for on-campus education will be used. The experiential component requirements will be met through capstone courses in which students are challenged to develop not only a startup opportunity but also to seek the support of the external community in developing the idea into a viable business model. This process occurs with the support of instructors and entrepreneurship mentors.

g) Linkages between the learning outcomes and the curriculum design, including an indication whether a work experience/work place term is required for degree completion.

²⁰ Completing a team-based project for the benefit of the community, for example, a fundraiser for cancer research (Project: Fall 2013)

²¹ Though the Venture Connection co-op term could count as an elective.

²² This council is made up of representatives from all of the partner faculties in this certificate and from SFU's venture connection.

There are five primary learning outcomes associated with the Certificate in Entrepreneurship and Innovation. These learning outcomes include:

- Gain foundational knowledge in entrepreneurship and innovation
- Demonstrate the ability to work effectively in a multidisciplinary team
- Apply entrepreneurship and innovation skills to other disciplines in order to gain experience and a range of experiences
- Understand, in detail, the path from idea to execution through a startup
- Develop a startup plan that outlines the development of a technology company or innovative offering

These learning outcomes are tied directly to the curriculum design, building from fundamental knowledge to integration with many opportunities for application and exploration²³ (figure 1).

h) Distinctive characteristics

The proposed certificate is distinctive in the following ways:

1. **Interdisciplinary:** The certificate is designed to require students from across the university to collaborate in interdisciplinary teams.
2. **Culminates in an entrepreneurial capstone:** Attaining the certificate will require students to complete a capstone that applies and integrates the skills they have gained in the program.
3. **Engagement through innovation and entrepreneurship:** No other university in Western Canada has designed a program that integrates offerings and participation from across the university, as we propose to do with this certificate. This will allow students across the university to engage with each other, faculties and offerings across the university as well as the community. This will also serve to attract and retain more high quality, creative students to all of SFU's faculties.

i) Anticipated completion time in years or semesters

The Certificate in Innovation and Entrepreneurship is designed to be completed in parallel with the degree the student is pursuing. Depending on when a student begins pursuit of the certificate, it would potentially add no additional time or as little as an additional term. Some of the courses, such as the capstones or electives, will also count toward the student's primary degree such as through the WQB requirements. However, if the student chooses to take more courses that are outside their primary degree, this may add one or two additional semesters on top of their degree.

²³ Fink (2003) *Creating significant learning experiences: An integrated approach to designing college courses*. Wiley & Sons

j) Enrolment plan for the length of the program

Enrollment will be based on prerequisites for the courses, which are designed for smooth progression throughout the certificate. Participating undergraduate students outside of Beedie will begin their certificate by completing BUS 238 which is open to all undergraduate students. Following completion of BUS 238, students outside of Beedie will be able to have equal access to enrollment in upper division business courses within the certificate as 1/3 of all sections of these business courses will be reserved for students outside of Beedie. Most elective classes outside of business have been selected on the basis that they have space and appropriate pre-requisites for additional students. In the future as demand increases, it may be necessary to have students declare that they are pursuing the certificate in order to be guaranteed access into courses outside their home faculties.

k) Policies on student evaluation

Per the general regulations of the University, the Beedie School of Business and the other participating faculties.

l) Policies on faculty appointments (minimum qualifications)

Continuing faculty, adjunct professors and sessionals will hold an acceptable qualification as determined by their home faculty.

m) Policies on program assessment

All academic units at SFU are subject to external review every seven years. AACSB and EQUIS accreditation in the Beedie School of Business require additional assessment of assurance of learning, community involvement, and attainment of mission every 5 years.

n) Level of support and recognition from other post-secondary institutions, (including plans for admissions and transfer within the British Columbia post-secondary education system) and relevant regulatory or professional bodies, where applicable.

This certificate is optional for any SFU student with a cumulative GPA of 2.4 from any faculty.

o) Evidence of student interest and labour market demand

The idea for this certificate came from the consistent and growing demand that Beedie Entrepreneurship and Innovation courses receive from students outside the business faculty. With minimal marketing, BUS 338 alone had requests for enrolment from 33 non-business students in the past two terms. The first offering of BUS 238 drew 71 students from across the university, the majority of whom are non-business students. Without any official path into the E&I concentration, non-business students currently

comprise approximately 18% of students in BUS 338 and 68% of BUS 450 (Spring 2014). Over the past four terms, non-business students have made up on average 21% of BUS 361. Discussions with these students, including SFU's 2012 Student Entrepreneurs of the Year, Michael Cheng (SIAT), have indicated that several non-business students would/will postpone their graduation if it means access to these courses and a corresponding designation. Therefore, this suggests a significant level of student interest outside of Beedie. Beedie students have also begun to inquire about practical, non-business skills such as design, web-related skills, app development and prototyping.

In regard to the labour market demand, Canada continues to face an innovation gap and in 2012 the conference board of Canada has asked for submission on how to increase the productivity levels in Canada²⁴. One of the critical factors influencing the rate of innovation is the level of entrepreneurship that is fostered in an economy²⁵. Canada continues to lag behind the US and other developed countries in this regard. The proposed certificate is designed to build awareness and develop skills for students so that they can more carefully consider the entrepreneurial option for their own careers.

Moreover, meetings with SFU alumni, currently operating their own businesses, and interviews with major employers in Vancouver have found that creative problem-solving, adaptability, risk tolerance, communication and teamwork, which are core skills built and honed through entrepreneurship training, were among their top desired qualities in new hires²⁶.

p) Summary of resources required and available to implement the program

The courses required for the certificate already exist and are offered regularly.

No course currently requires additional funding, although funding for additional instructors for additional sections may be required in the future as demand for the certificate increases.

q) Brief description of any program and associated resources that will be reduced or eliminated when the new program is introduced (if applicable)

None

r) List of faculty members teaching/supervising, what percentage of their teaching will be devoted to the program, and their areas of specialization

Current faculty in the Beedie School of Business who will teach courses include (but are not limited to)*:

²⁴ "Innovation: A Call to Action", <http://rd-review.ca/eic/site/033.nsf/eng/00288.html>, accessed 091012

²⁵ BC Jobs Plan – Canada Starts Here, www.bcjobsplan.ca, accessed October 7, 2012.

²⁶ Beedie Undergraduate Core Committee Data Collection 2013.

Faculty	Area of Specialization	% Teaching devoted to program
Dr. Andrew Gemino, Professor	Information Systems	10%
Dr. Elicia Maine, Associate Professor	Technology Management	10%
Dr. Jan Kietzmann, Associate Professor	Information Systems, Entrepreneurship	25%
Dr. Kamal Masri, Lecturer	Information Systems, Entrepreneurship	25%
Dr. Sarah Lubik Lecturer	Entrepreneurship, New Product Commercialization	100%
Dr. Lisa Papania, Lecturer	Entrepreneurship, New Product Development	25%

*Initially, it is not foreseen that opening space in non-business courses will need to result in additional course sections, but will require participating faculty to allow registration to students outside their faculty. As demand for the certificate grows, this will have to be revisited.

s) For a program where the intention is to charge a premium fee, a budget developed in collaboration with the dean of the faculty

Not applicable – not a program. No change in existing fees²⁷.

t) Related programs in your own or other British Columbia post-secondary institutions.

None as of October 2014.

6. Contact information of the institutional contact person in case more information

Dr. Andrew Gemino, Associate Dean, Undergraduate, Beedie School of Business,
778 782 3653, gemino@sfu.ca

Dr. Sarah Lubik, Lecturer, Beedie School of Business
778.782.9664, slubik@sfu.ca

7. In addition, attach the documentation used for internal approval; alternatively, provide a link to a website where this information is available. Normally, the Senate materials describing the FPP may be used for this purpose and will be provided by the office of the AVPA to the DQAB.

8. In addition, letters of support are also supplied. Please see below.

²⁷ However, some of the faculties in the program do charge premium fees.

Calendar Change, Undergraduate Department, Beedie School of Business

Effective: ~~Fall 2015 Calendar~~

Summary of Changes:

- Creation of the Innovation and Entrepreneurship Certificate language for the academic calendar

Rationale:

See attached memo.

The following program will be affected by these changes:

- None. Newly created Certificate.

Note: Revised content will be noted through Track Changes.

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## **CALENDAR CHANGE:**

# **Innovation and Entrepreneurship**

## **CERTIFICATE**

### **Limitations:**

Students pursuing a Bachelor of Business Administration may either declare this certificate or a concentration in Entrepreneurship and Innovation, but not both.

### **Grade Requirements**

In addition to normal university grade point average requirements, the Beedie School of Business requires a minimum 2.40 cumulative grade point average (CGPA) for entry into all 300 and 400 division business courses.

### **Admission Requirements**

A student in any faculty at SFU may declare this certificate through the Beedie School of Business.

### **Program Requirements**

Students must complete a minimum of 21 units, including foundational business courses, a capstone course, and additional coursework from a variety of disciplines. The additional coursework will vary depending on whether or not a student is pursuing a Bachelor of Business Administration (BBA).

All students will complete all of:

BUS 238 - Introduction to Entrepreneurship and Innovation (3)  
BUS 314 - Resourcing New Ventures (3)  
BUS 338 - Foundations of Innovation (3)  
BUS 361 - Project Management (3)

And one of\*:

BUS 477 - Startup Experience (4)  
ENV 495 - Environmental Capstone (4)\*\*  
MSE 410 - Capstone Design Technical Project (3)  
MSE 411W - Capstone Design Technical Project II (3)

\*Substitutions with appropriate course content may be possible with permission from the Beedie School of Business.

\*\* ENV 495 will only count toward this certificate when offered as part of Change Lab. Students are to consult with a Faculty of Environment advisor before enrolling in this course.

#### Additional Requirements for Students Pursuing a BBA:

Students will complete three of\*:

BISC 372 - The Science of Brewing (3)  
CMPT 120 - Introduction to Computer Science and Programming 1 (3)  
CMPT 320 - Sociotechnological Issues of Comp Science (3)  
HSCI 130-Foundations of Health Science (3)  
HSCI 305 - The Canadian Health System (3)  
HSCI 312 - Health Promotion: Individuals and Communities (3)  
IAT 333 - Interaction Design Principles (3)  
IAT 431 - Speculative Design (3)  
MSE 110 - Mechatronics Design I (3) or MSE 111 - Mechatronics for Non-Engineers (3)

#### Additional Requirements for Students Pursuing a Degree Other than a BBA:

Students will complete two of\*:

BISC 372 - The Science of Brewing (3)  
BUS 443 - New Product Development (3)  
BUS 453 - Sustainable Innovation (3)  
CMPT 120 - Introduction to Computer Science and Programming 1 (3)  
CMPT 320 - Sociotechnological Issues of Comp Science (3)  
HSCI 130-Foundations of Health Science (3)  
HSCI 305 - The Canadian Health System (3)  
HSCI 312 - Health Promotion: Individuals and Communities (3)  
IAT 333 - Interaction Design Principles (3)  
IAT 431 - Speculative Design (3)  
MSE 110 - Mechatronics Design I (3) or MSE 111 - Mechatronics for Non-Engineers (3)



**\*Substitutions with appropriate course content may be possible with permission from the Beedie School of Business.**



SIMON FRASER UNIVERSITY  
ENGAGING THE WORLD

FACULTY OF HEALTH SCIENCES

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Dr. Blaize Reich  
Dean, Beedie School of Business

Dear Blaize,

It is my pleasure to indicate, by this letter, our faculty's support of the proposal for an Undergraduate Certificate in Innovation and Entrepreneurship slated to launch in September 2015. The proposal builds on the notice of intent passed through both the Senate Committee on Undergraduate Studies and the Senate Committee in University Priorities in May 2014.

I recognize that while the home faculty for this proposed certificate is the Beedie School of Business, this certificate is a partnership between many faculties, including ours. There are some courses listed in the proposal that will be offered within our faculty, which have been approved by myself and other appropriate members of my faculty. At this time, we do not expect significant course content changes or increases in the number of course sections offered for these courses.

Sincerely

Sincerely

John D. O'Neil, PhD, FCAHS

Professor and Dean  
Faculty of Health Sciences  
Simon Fraser University  
Blusson Hall  
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INGRID LEMAN STEFANOVIC, DEAN  
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**MEMORANDUM**

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**ATTENTION** Blaize Reich, Dean, Beedie School of Business

**DATE** October 30, 2014

**FROM** Ingrid Stefanovic, Dean of Environment

**RE:** FENV Support for Undergraduate Certificate in Innovation & Entrepreneurship

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It is my pleasure to indicate, by this letter, our faculty's support of the proposal for an *Undergraduate Certificate in Innovation and Entrepreneurship* slated to launch in September 2015. Over the past year the Faculty of Environment has been represented on the *SFU Innovation and Entrepreneurship Council* and has provided input on design of the proposal. The proposal builds on the notice of intent passed through both the *Senate Committee on Undergraduate Studies* and the *Senate Committee in University Priorities* in May 2014.

We see this certificate as important for those students within Environment who wish to focus on the intersections of environment/sustainability and entrepreneurship. The certificate also builds upon our growing collaboration, providing a variety of options for students from across the university to study at the intersection of business and environment.

I recognize that while the home faculty for this proposed certificate is the Beedie School of Business, this certificate is a partnership between many faculties, including ours. The collaboratively designed certificate utilizes experiential courses within Environment, (ChangeLab and Environmental Capstone), that have been approved by myself. At this time, we do not expect significant course content changes or increases in the number of course sections offered for these courses.

Sincerely,

Ingrid Stefanovic

ILS/db



FACULTY OF SCIENCE

October 15, 2014

8888 University Dr  
Burnaby BC Canada  
V5A 1S6

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Blaize Horner Reich  
Dean, Beedie School of Business  
Simon Fraser University

Dear Blaize,

The Faculty of Science is happy to support the proposal for an Undergraduate Certificate in Innovation and Entrepreneurship slated to launch in September 2015. The proposal builds on the notice of intent passed through both the Senate Committee on Undergraduate Studies and the Senate Committee in University Priorities in May 2014.

I recognize that while the Beedie School of Business is the home faculty for this proposed certificate, it represents a partnership between many faculties, including ours. There are some courses listed in the proposal that will be offered within our faculty (e.g. BISC 372), which have been approved by me and other appropriate members of my faculty. At this time, we do not expect significant course content changes or increases in the number of course sections offered for these courses beyond those already planned.

We in Science look forward to helping provide this exciting opportunity for so many of our students at SFU.

Sincerely yours,

Claire Cupples, Ph.D.  
Dean, Faculty of Science  
Simon Fraser University





November 12, 2014

To: Dean Blaize Reich  
Segal Graduate School of Business  
Simon Fraser University  
500 Granville Street  
Vancouver, BC, Canada  
V6C 1W6

**Re: Support Letter for the Undergraduate Certificate in Innovation and Entrepreneurship**

Dear Blaize,

It is my pleasure to indicate, by this letter, our faculty's support of the proposal for an Undergraduate Certificate in Innovation and Entrepreneurship slated to launch in September 2015. The proposal builds on the notice of intent passed through both the Senate Committee on Undergraduate Studies and the Senate Committee in University Priorities in May 2014.

I recognize that while the home faculty for this proposed certificate is the Beedie School of Business, this certificate is a partnership between many faculties, including ours. There are some courses listed in the proposal that will be offered within our faculty, which have been approved by myself and other appropriate members of my faculty. At this time, we do not expect significant course content changes or increases in the number of course sections offered for these courses.

Kind regards,

Farid Golnaraghi, PhD, PEng, FCSME  
Professor and Director  
School of Mechatronic Systems Engineering



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MEMORANDUM

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|           |                                                                               |       |                   |
|-----------|-------------------------------------------------------------------------------|-------|-------------------|
| ATTENTION | Blaize Reich, Dean of Business                                                | DATE  | November 13, 2014 |
| FROM      | Marek Hatala, Director, SIAT                                                  | PAGES | 1                 |
| RE:       | SIAT Support for Undergraduate Certificate in Innovation and Entrepreneurship |       |                   |

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Dear Blaize,

It is my pleasure to indicate, by this letter, SIAT's support of the proposal for an Undergraduate Certificate in Innovation and Entrepreneurship slated to launch in September 2015. The proposal builds on the notice of intent passed through both the Senate Committee on Undergraduate Studies and the Senate Committee in University Priorities in May 2014.

I recognize that while the home faculty for this proposed certificate is the Beedie School of Business, this certificate is a partnership between many faculties, including ours. There are some courses listed in the proposal that will be offered within SIAT, which have been approved by myself and other appropriate members of my faculty. At this time, we do not expect significant course content changes or increases in the number of course sections offered for these courses.

Sincerely

Thank you,  
Dr. Marek Hatala  
Professor and Director, SIAT





FACULTY OF APPLIED SCIENCES

November 13, 2014

OFFICE OF THE DEAN

Tel: 1-778-782-4724  
Fax: 1-778-782-5802  
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ADDRESS

ASB 9861  
Applied Science Building  
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Burnaby BC V5A 1S6  
Canada

Dr. Blaize Horner Reich  
Dean, Beedie School of Business  
Simon Fraser University

*Blaize*  
Dear ~~Dr. Reich~~,

It is my pleasure to indicate, by this letter the Faculty of Applied Sciences' support of the proposal for an Undergraduate Certificate in Innovation and Entrepreneurship, slated to launch in September 2015. The proposal builds on the notice of intent passed through both the Senate Committee on Undergraduate Studies and the Senate Committee on University Priorities in May 2014.

I recognize that while the home faculty for this proposed certificate is the Beedie School of Business, this certificate is a partnership between many faculties, including ours. There are some courses listed in the proposal that will be offered within our Faculty, which have been approved by myself and other appropriate members of my Faculty. At this time, we do not expect significant course content changes or increases in the number of course sections offered for these courses.

Sincerely,

A handwritten signature in blue ink, appearing to read "U. Glässer".

Dr. Uwe Glässer,  
Acting Dean



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Office of the Dean

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515 West Hastings Street  
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February 11, 2015

To Whom it May Concern,

It is my pleasure to indicate, by this letter, our faculty's support of the proposal for an Undergraduate Certificate in Innovation and Entrepreneurship slated to launch in September 2015. The proposal builds on the notice of intent passed through both the Senate Committee on Undergraduate Studies and the Senate Committee in University Priorities in May 2014.

I recognize that while the home faculty for this proposed certificate is the Beedie School of Business, this certificate is a partnership between many faculties, including ours. FCAT is in the process of developing a related certificate in Creative Entrepreneurship that will be supported in part by this Beedie initiative. We see all of these related activities as an essential component of an institution that truly values experiential learning and real community engagement.

Finally, there are some courses listed in the proposal that will be offered within our faculty, which have been approved by myself and other appropriate members of my faculty. At this time, we do not expect significant course content changes or increases in the number of course sections offered for these courses.

Sincerely

A handwritten signature in black ink, appearing to be "M. Gotfrit", with a long horizontal line extending to the right.

Martin Gotfrit  
Associate Dean, FCAT  
Professor, Music SCA



**NOI Certificate PROPOSAL**  
**Certificate in Entrepreneurship & Innovation (CEI)**  
**Beedie School of Business**  
**Simon Fraser University**  
**May 2014**

**Executive Summary**

The Beedie School of Business, in consultation with Applied Sciences; Communications, Arts and Technologies; Environment and Science, with the support of SFU's Venture Connection Student Incubator, seeks permission to offer a *Certificate Entrepreneurship & Innovation* for undergraduate students across all faculties at SFU. There has been significant demand for and participation of non-business students for entrepreneurship courses. Moreover, a certificate which enables interdisciplinary teams will give SFU's students a richer, more realistic entrepreneurship experience. It is important to note that entrepreneurship has become a much broader concept than merely starting small firms; for the purposes of this proposal, we follow Harvard's definition "Entrepreneurship is the pursuit of opportunity without regard to resources currently controlled"<sup>1</sup>.

The proposed certificate will be earned through a combination of existing core Beedie Entrepreneurship and Innovation courses and a selection of entrepreneurial courses from other disciplines, along with a new course, BUS 238 *Introduction to Entrepreneurship and Innovation*, which will function as the entry point for non-business students. This certificate has significant overlap with the current Beedie Entrepreneurship and Innovation (E&I) concentration, therefore students will be allowed either a concentration in business or the certificate, but not both. Electing to pursue the certificate requires and encourages Beedie students to take at least 12 units outside of their home department/faculty.

The Canadian and B.C. governments are actively encouraging post-secondary institutions to deliver entrepreneur programs<sup>2,3</sup>. Entrepreneurship and innovation training develops "renewable competencies" such as creativity and adaptability, team work and collaboration skills, communication and implementation; which prepare students for an employment landscape that is rapidly changing<sup>4</sup>. These skills have been found to lead to much greater ambition and productivity<sup>5</sup>. Even if the students choose not to immediately become entrepreneurs, The Centre for Business Innovation (CBI), part of the Conference Board of Canada, indicates these are critical skills looked for in employees<sup>6</sup>. Realistic, practical entrepreneurship education requires an interdisciplinary approach. To be effective in innovative and entrepreneurial teams, students need to learn how to work

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<sup>1</sup> <http://www.inc.com/eric-schurenberg/the-best-definition-of-entrepreneurship.html#ixzz30rXI1Sva>

<sup>2</sup> NSERC (2013) The Government of Canada Committed to Research and Innovation: Minister of State Rickford Announces Funding to Top Academics. Accessed from: [http://www.nserc-crsng.gc.ca/Media-Media/NewsRelease-CommuniqueDePresse\\_eng.asp?ID=421](http://www.nserc-crsng.gc.ca/Media-Media/NewsRelease-CommuniqueDePresse_eng.asp?ID=421)

<sup>3</sup> B.C. Jobs Plan (2012) Canada Starts Here. Accessed from: <http://www.bcjobsplan.ca/wp-content/uploads/BC-Jobs-Plan-PDF.pdf>

<sup>4</sup> Miller (2013) The Rise of the Generalists. Globe and Mail Canadian University Report. October. 19-13

<sup>5</sup> <http://business.financialpost.com/2012/08/20/why-next-36-matters-for-all-canadian-entrepreneurs/>

<sup>6</sup> <http://www.conferenceboard.ca/cbi/innovationskills.aspx>

with students from other disciplines<sup>7</sup>. Many of the world's top universities including Stanford, Babson College and the University of Cambridge have already launched highly successful interdisciplinary entrepreneurship and innovation programs. Interdisciplinary entrepreneurship initiatives at SFU, such as Venture Connection (Student Entrepreneurship Incubator), RADIUS (Social Entrepreneurship and Innovation), Ken Spencer Student Incubator (Mechatronics and Entrepreneurship) and Semester in Innovation (Business, Computer Science and Design), are examples of the foundational work that has already begun. However, access to the majority of SFU's entrepreneurship and innovation courses is currently limited to Beedie Students.

The objective of the proposed certificate is thus to provide undergraduate students from all disciplines the opportunity to gain practical, realistic training in interdisciplinary entrepreneurship. This experience will mean that students from across SFU will be better equipped to seize opportunities in an increasingly competitive job market or to create and develop their own opportunities with appropriate teams.

**1. Credential to be awarded, including the level and category of the degree and the specific discipline or field of study;**

Certificate in Entrepreneurship and Innovation

**2. Location of program, including justification for program site**

SFU, Surrey and Burnaby campuses

**3. Faculty(ies), Department(s), or School(s) offering the certificate;**

The Beedie School of Business in partnership with the Faculty of Communications, Arts and Technology, Faculty of Applied Sciences, Faculty of Science and Faculty of Environment.

**4. Anticipated program start date**

Spring 2015

**5. Description of proposed program**

**a) Aims, goals and/or objectives**

The objective of the proposed certificate is to provide undergraduate students from across SFU with a structured means to develop practical, entrepreneurial and innovative skills within multidisciplinary teams<sup>8</sup>. Students who earn the

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<sup>7</sup> Etzkowitz, H. et al. (2000) "The Future of the university and the university of the future: the evolution of ivory tower to entrepreneurial paradigm". Research Policy. 29 (2) 313-330.

<sup>8</sup> Not all E&I courses require groups for their students, so this cannot be guaranteed in every class but as most entrepreneurship courses are team-based and we are aiming for 50% non-business students in E&I courses; therefore, it is assumed that most teams will have to be interdisciplinary. Students complementary

Certificate in Entrepreneurship and Innovation will be better equipped to seize opportunities in an increasingly competitive job market or to create and develop their own opportunities with appropriate teams.

#### **b) Anticipated contribution to the mandate and strategic plan of the institution**

The proposed certificate in Entrepreneurship and Innovation is an innovative, cross faculty initiative that addresses the demand for increased entrepreneurial activity in the BC and Canadian economies. The certificate provides a significant, meaningful and challenging experiential learning opportunity for undergrad students. This experience will enable students to understand and be able to navigate the challenges in developing successful startups<sup>9 10</sup>

This certificate clearly aligns with SFU's Academic Plan to "meet the challenge of preparing students as engaged citizens and for new kinds of career"(pg.1) and two of the President's Goals and Objectives 2013-14.

1. "Engaging students: To equip SFU students with the knowledge, skills, and experiences that prepare them for life in an ever-changing and challenging world"<sup>11</sup>: This allows students to engage across disciplines and offers an innovative and practical disciplinary program that has the potential to create significant economic opportunities for its graduates.
2. "Engaging Communities: To be Canada's most community-engaged research university"<sup>8</sup>: Many of the courses required for this certificate require students to leave the classroom setting and interact with the community through mentorship, market data-collection, concept validation and expert interviews. This year alone, the Beedie undergraduate Entrepreneurship and Innovation Concentration has engaged over 35 industry mentors and experts and the participation of the City of Surrey, City Studio, VanCity, Canadian Youth Business Foundation (CYBF), Wave Front Incubator and BCTIA's Centre for Growth (C4G).

3.

#### **c) Target audience**

The target audience is undergraduate students from all SFU faculties.

#### **d) Content and summary of requirements for graduation**

The Entrepreneurship and Innovation (E&I) concentration in the Faculty of Business Administration is currently<sup>12</sup> going through a significant redesign (in 2014) that has

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cross-disciplinary programs which count toward the certificate, like Change Lab (Beedie and Environment) and Tech e@sfu (Beedie and MSE) already require this as part of their curriculum.

<sup>9</sup> We use startup as a broad, inclusive term which means "an institution designed to create something new under conditions of extreme uncertainty". Ries, E. (2011) The Lean Startup

<sup>10</sup> This certificate will not compete directly with joint majors, as it allows students to develop entrepreneurship skills but does not require or produce the depth and breadth to the full bodies of knowledge as double majors do. It also creates teams rather than all skills in all students.

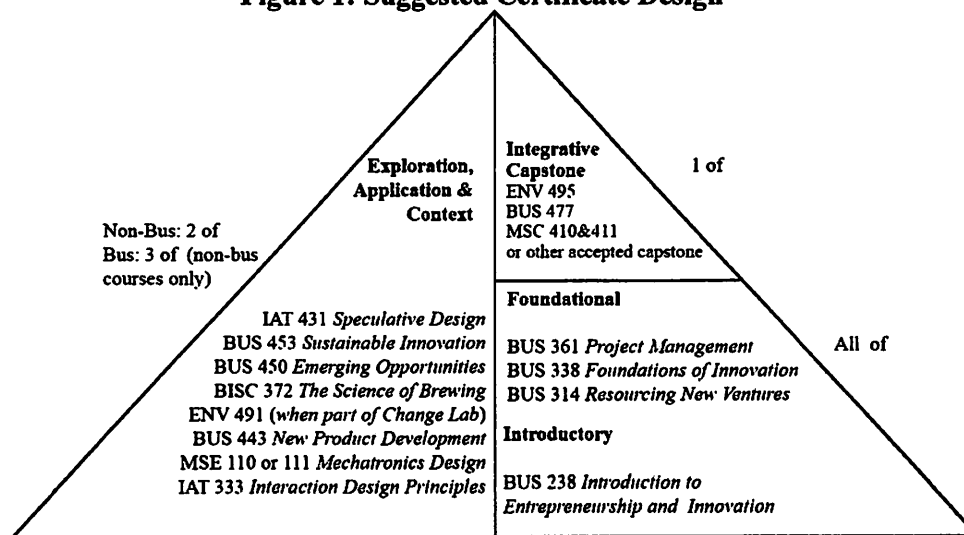
<sup>11</sup> <http://www.sfu.ca/pres/reports-initiatives/goals13-14.html>

<sup>12</sup> As of Fall 2013

resulted in changes to the curriculum. These changes include the introduction of a 200-level entrepreneurship course, BUS 238 *Introduction to Entrepreneurship and Innovation*, which is open to students from across the university and is a prerequisite to allow non-business students into the 300-level Business E&I courses. BUS 338 *Foundations of Innovation*, BUS 361 *Project Management* and BUS 314 *Resourcing New Ventures*, fit well as foundational courses in the Entrepreneurship and Innovation Certificate.

Figure 1 shows how students in the certificate will build from introductory and foundational knowledge to exploratory, applied and context-oriented electives to an applied, project-based course that allows for the integration of all of the skills and knowledge they have acquired. We refer to this as an integrative capstone experience.

**Figure 1: Suggested Certificate Design<sup>13</sup>**



### **Introductory & Foundational Courses**

BUS 238 provides an introduction to basic entrepreneurship and innovation concepts and provide opportunities for students from different disciplines to interact and partner on class projects. BUS 238 will also provide the gateway for non-business students to enter the certificate<sup>14</sup>.

BUS 338, BUS 314 and BUS 361 provide foundational knowledge for developing a new offering and launching a start-up. Sections of the foundational business courses will be open to students who have taken BUS 238. This will provide a port of discover and entry into entrepreneurship to non-business students.

<sup>13</sup> These courses have been discussed and selected with their home faculties. The full proposal for this certificate may include additional courses.

<sup>14</sup> On successful completion of BUS 238, they will have the option to declare that they are pursuing the E&I certificate, which will then be marked in the registration system (similar to the Business Minor program), opening the rest of the E&I courses to them automatically. Non-business seats will be held open in 238 and subsequent classes to ensure the certificate program is available to those that choose to pursue it.

### **Electives: Exploration, Application and Context**

A range of elective courses then allow students to gain experience, application and immersion in other fields. This certificate was also designed in consultation with the Faculty of Communication, Arts and Technology, Faculty of Applied Sciences, Faculty of Science and Faculty of Environment in order to determine appropriate entrepreneurship and/or innovation oriented courses from across the university. Ongoing cross-faculty collaboration is anticipated in the refinement and delivery of the certificate. Courses that may be considered to fit the requirements of these electives would fall into one or more of the following categories:

#### ***Application:***

In these courses, students develop a product, service or solution for an identified user or societal need. Ex.

*ENV 491/BUS 4: Change Lab*  
*IAT 431: Speculative Design*

#### ***Exploration & Context:***

As this certificate is designed to provide students with the experience of learning from different perspectives and exploring the fields of others, *In these courses, students are exposed to an in-depth look at an industry, preferably outside their own.* Ex.

*BISC The Science of Brewing*  
*BUS 450 Managing Emerging Technologies*<sup>15</sup>

Beedie students will be required to take their electives outside of the business faculty. They will also have to take three, rather than the two electives required for students from other faculties. This is to ensure that business students will have proportioned experience outside their home faculty as is required of non-business students pursuing the certificate.

### **Capstone: Integrative, experiential final course**

An entrepreneurial, team-based capstone experience provides a final integrative experience. If a capstone is not available in the student's home faculty, they will have the prerequisites to take BUS 477, so will be able to complete the certificate<sup>16</sup>.

### **Required Courses**

The following is an example of possible course, which could be completed for a minimum of 21 credits (table 1). Additional appropriate courses may be added or removed after further discussion with partner faculties.

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<sup>15</sup> This course focuses on the application of an emerging technology such as health tech solutions or social media.

<sup>16</sup> Whether the capstone or electives are appropriate will be decided by an interdisciplinary council of SFU faculty (see section e).

**Table 1: Possible Certificate Requirements**

| Required                                                             | Course                                                                                                   | Hrs | Concentration/<br>School            | Course Name                                                                 |
|----------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------|-----|-------------------------------------|-----------------------------------------------------------------------------|
| All of                                                               | BUS 238                                                                                                  | 3   | Entrepreneurship & Innovation (E&I) | Introduction to Entrepreneurship and Innovation                             |
|                                                                      | BUS 314                                                                                                  | 3   | E&I                                 | Resourcing New Ventures                                                     |
|                                                                      | BUS 338                                                                                                  | 3   | E&I                                 | Foundations of Innovation                                                   |
|                                                                      | BUS 361 (or equivalent )                                                                                 | 3   | MIS/E&I/Other faculty               | Project Management (or equivalent)                                          |
| 2 of (or 3 non-business courses for business students) <sup>17</sup> | BUS 443                                                                                                  | 4   | E&I/MRK                             | New Product Development                                                     |
|                                                                      | BUS 453                                                                                                  | 3   | E&I                                 | Sustainable Innovation                                                      |
|                                                                      | ENV 491 <sup>18</sup>                                                                                    | 3   | ENV                                 | Directed Studies -Change Lab                                                |
|                                                                      | MSE 110 or 111                                                                                           | 3   | MSE                                 | Mechatronics Design I                                                       |
|                                                                      | IAT 333                                                                                                  | 3   | IAT                                 | Interaction Design Principles                                               |
|                                                                      | IAT 431                                                                                                  | 3   | IAT                                 | Speculative Design                                                          |
|                                                                      | BISC 372                                                                                                 | 3   | BISC                                | The Science of Brewing                                                      |
|                                                                      | <i>Other courses which give opportunities for context, application and exploration of E&amp;I topics</i> | 3-4 | <i>Any</i>                          | <i>Other options from other faculties may be added in the full proposal</i> |
| 1 of                                                                 | BUS 477                                                                                                  | 4   | E&I                                 | Startup Experience                                                          |
|                                                                      | ENV 495                                                                                                  | 8   | ENV                                 | Environmental Capstone                                                      |
|                                                                      | MSE 410&411                                                                                              | 8   | MSE                                 | Capstone Design Technical Project                                           |
|                                                                      | <i>Other</i>                                                                                             | 4-8 | <i>Any</i>                          | <i>Other relevant capstone</i>                                              |

### Breadth, Writing, and Quantitative Requirements

The proposed Certificate in Entrepreneurship and Innovation will be offered as a complement to the degrees offered within the Beedie School of Business (BBA) and the undergraduate programs of other faculties. As such, all certificate students will satisfy SFU's breadth, writing, and quantitative requirements as part of their normal graduation requirements. Beedie students who choose to complete the certificate are required to take 9 credits outside of business and cannot also declare an E&I concentration.

### Co-Operative Education and the Experiential Component

Experiential learning is an important part of the proposed certificate and the project-based capstone course is a central part of the program. Within the core E&I courses, students

<sup>17</sup> It should be noted that the above requires Beedie students pursuing the certificate to take three electives from outside of their home faculty in order to ensure that they gain equal experience as non-business students do, outside of their home faculty. Non-business students must complete at least three core BUS courses in the certificate already. Having business students complete at least 3 non-business electives would counter-balance the core business courses for exposure outside of the business faculty.

<sup>18</sup> May become ENV 452 – Change Lab. If so, this will be reflected in the full proposal.

will be exposed to service learning (BUS 361: Project Management<sup>19</sup>, working with real early-stage startups to develop a commercialization strategy (BUS 338) and creating and executing their own ideas (multiple electives and capstones); however, official co-op terms are not required for completion of this certificate.

#### **e) Certificate Governance**

It is planned that this certificate will be overseen by the SFU Interdisciplinary Innovation and Entrepreneurship Council (IIEC). As courses are revised or new courses are developed that fit with the criteria outlined above, the IIEC will have the authority to add them to the list of accepted courses.

#### **f) Delivery method**

Since the program is based upon existing courses and programs, with the exception of BUS 238, the standard delivery methods already in place for on-campus education will be used. The experiential component requirements will be met through capstone courses in which students are challenged to develop not only a startup opportunity but also to seek the support of the external community in developing the idea into a viable business model. This process occurs with the support of instructors and entrepreneurship mentors.

#### **g) Linkages between the learning outcomes and the curriculum design, including an indication whether a work experience/work place term is required for degree completion.**

There are five primary learning outcomes associated with the Certificate in Entrepreneurship and Innovation. These learning outcomes include:

- Gain foundational knowledge in entrepreneurship and innovation
- Demonstrate the ability to work effectively in a multidisciplinary team
- Apply entrepreneurship and innovation skills other disciplines in order to gain experience and a range of experiences
- Understand, in detail, the path from idea to execution through a startup
- Develop a startup plan that outlines the development of a technology company or innovative offering

These learning outcomes are tied directly to the curriculum design, building from fundamental knowledge to integration with many opportunities for application and exploration<sup>20</sup> (figure 1).

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<sup>19</sup> Completing a team-based project for the benefit of the community, for example, a fundraiser for cancer research (Project: Fall 2013)

<sup>20</sup> Fink (2003) *Creating significant learning experiences: An integrated approach to designing college courses*. Wiley & Sons



#### **h) Distinctive characteristics**

The proposed Certificate in Entrepreneurship and Innovation is distinctive in the following ways:

1. **Interdisciplinary:** The certificate is designed to require students from across the university to collaborate in interdisciplinary teams.
2. **Culminates in an entrepreneurial capstone:** Attaining the certificate will require students to complete a capstone that applies and integrates the skills they have gained in the program.
3. **Engagement through entrepreneurship:** No other university in Western Canada has opened its entrepreneurship program to the rest of the university as fully as we propose to do with this certificate. This will also serve to attract and retain more high quality, creative students to all of SFU's faculties.

#### **i) Anticipated completion time in years or semesters**

The Certificate in Entrepreneurship and Innovation is designed to be completed in parallel with the major degree the student is pursuing and not add considerably to the time required to graduate, perhaps as little as an additional semester. Some of the courses, such as the capstones or electives, will also count toward the student's primary degree as long as it is completed using the entrepreneurship principles developed in the certificate.

#### **j) Enrolment plan for the length of the program**

Participating non-business undergraduate students will have to complete BUS 238 and then declare that they are pursuing the certificate in order to gain access to the rest of the business courses. Participating business students may also have to declare that they are pursuing the certificate in order to be guaranteed access into non-business courses.

#### **k) Policies on student evaluation**

Per the general regulations of the University, the Beedie School of Business and the other participating faculties.

#### **l) Policies on faculty appointments (minimum qualifications)**

Continuing faculty will hold a PhD or equivalent. Sessionals and adjunct professors will hold a masters degree or higher.

#### **m) Policies on program assessment**

All academic units at SFU are subject to external review every seven years. AACSB and EQUIS accreditation in the Beedie School of Business require additional assessment of assurance of learning, community involvement, and attainment of mission every 5 years.

**n) Level of support and recognition from other post-secondary institutions, (including plans for admissions and transfer within the British Columbia post-secondary education system) and relevant regulatory or professional bodies, where applicable.**

This certificate is optional for any SFU student with a cumulative GPA of 2.4 from any faculty.

**o) Evidence of student interest and labour market demand**

The idea for the Certificate in Entrepreneurship and Innovation came from the consistent and growing demand that Beedie Entrepreneurship and Innovation courses receive from students outside the business faculty. With minimal marketing, BUS 338 alone had requests for enrolment from 33 non-business students in the past two terms. Without any official path into the E&I concentration, non-business students currently comprise approximately 18% of students in BUS 338 and 68% of BUS 450 (Spring 2014). Over the past four terms, non-business students have made up on average 21% of BUS 361. Discussions with non-bus students, including SFU's 2012 Student Entrepreneurs of the Year, Michael Cheng (SIAT), have indicated that several non-business students would/will postpone their graduation if it means access to these courses and a corresponding designation. This therefore suggests a significant level of student interest. Beedie students have also begun to inquire about practical, non-business skills such as design, web-related skills, app development and prototyping.

In regard to the labour market demand, Canada continues to face an innovation gap and in 2012 the conference board of Canada has asked for submission on how to increase the productivity levels in Canada<sup>21</sup>. One of the critical factors influencing the rate of innovation is the level of entrepreneurship that is fostered in an economy<sup>22</sup>. Canada continues to lag behind the US and other developed countries in this regard. The proposed certificate is designed to build awareness and develop skills for students so that they can more carefully consider the entrepreneurial option for their own careers.

Moreover, meetings with SFU alumni, currently operating their own businesses, and interviews with major employers in Vancouver have found that creative problem-solving, adaptability, risk tolerance, communication and teamwork, which are core skills built and honed through entrepreneurship training, were among their top desired qualities in new hires<sup>23</sup>.

**p) Summary of resources required and available to implement the program**

The bulk of the courses required for the certificate already exist and are offered regularly. The only exception is BUS 238. Neither requires additional funding, although funding for additional instructors for additional sections may be required in the future as demand for the certificate increases.

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<sup>21</sup> "Innovation: A Call to Action", <http://rd-review.ca/eic/site/033.nsf/eng/00288.html>, accessed 091012

<sup>22</sup> BC Jobs Plan – Canada Starts Here, [www.bcjobsplan.ca](http://www.bcjobsplan.ca), accessed October 7, 2012.

<sup>23</sup> Beedie Undergraduate Core Committee Data Collection 2013.

**q) Brief description of any program and associated resources that will be reduced or eliminated when the new program is introduced (if applicable)**

None

**r) List of faculty members teaching/supervising, what percentage of their teaching will be devoted to the program, and their areas of specialization**

Current faculty in the Beedie School of Business who will teach courses include (but are not limited to)\*:

| Faculty                                               | Area of Specialization                          | % Teaching devoted to program |
|-------------------------------------------------------|-------------------------------------------------|-------------------------------|
| Dr. Andrew Gemino                                     | Information Systems                             | 10%                           |
| Dr. Elicia Maine                                      | Technology Management                           | 10%                           |
| Dr. Jan Kietzmann                                     | Information Systems, Entrepreneurship           | 25%                           |
| Dr. Kamal Masri, Lecturer, Beedie School of Business  | Information Systems, Entrepreneurship           | 25%                           |
| Dr. Sarah Lubik Lecturer, Beedie School of Business   | Entrepreneurship, New Product Commercialization | 50%                           |
| Dr. Lisa Papania, Lecturer, Beedie School of Business | Entrepreneurship, New Product Development       | 25%                           |

\*Initially, it is not foreseen that opening space in non-business courses will need to result in additional course sections, but will require participating faculty to allow registration to students outside their faculty. As demand for the program grows, this will have to be revisited.

**s) For a program where the intention is to charge a premium fee, a budget developed in collaboration with the dean of the faculty**

Not applicable – not a program. No change in existing fees.

**t) Related programs in your own or other British Columbia post-secondary institutions.**

None as of December 2013.

**6. Contact information of the institutional contact person in case more information**

Dr. Andrew Gemino, Associate Dean, Undergraduate, Beedie School of Business,  
778 782 3653, [gemino@sfu.ca](mailto:gemino@sfu.ca)

Dr. Sarah Lubik, Lecturer, Beedie School of Business  
778.782.9664, [slubik@sfu.ca](mailto:slubik@sfu.ca)

- 7. In addition, attach the documentation used for internal approval; alternatively, provide a link to a website where this information is available. Normally, the Senate materials describing the FPP may be used for this purpose and will be provided by the office of the AVPA to the DQAB.**