SFU

MEMO

Dean of
Graduate Studies

STREET ADDRESS
Maggie Benston Student
Services Centre 1100
Burnaby   BC   V5A 1S6
Canada

MAILING ADDRESS
8888 University Drive
Burnaby   BC   V5A 1S6
Canada

TO Senate | TEL

FROM Mary-Ellen Kelm, Acting Dean, Graduate Studies

RE Faculty of Applied Sciences   **[GS2012.27]**

CC Rob Cameron

DATE 12 June 2012

For information:
Acting under delegated authority at its meeting of 11 June 2012, SGSC approved the following curriculum revision:

Faculty of Applied Sciences   **[GS2012.27]**
School of Computing Science
1. Addition of graduate Co-operative Education (WIL) Program for CMPT graduate students

Effective Date is January 2013

Senators wishing to consult a more detailed report of curriculum revisions may do so by going to Docushare: https://docushare.sfu.ca/dsweb/View/Collection-12682
If you are unable to access the information, please call 778-782-3168 or email shelley_gair@sfu.ca.

SIMON FRASER UNIVERSITY   ENGAGING THE WORLD

Proposal for Computing Science Graduate Co-op Program
June 6, 2012

Overview

The School of Computing Science (Faculty of Applied Sciences) and the SFU Work Integrated Learning unit (Co-operative Education, Volunteer and Career) propose the development of a graduate co-op program in Computing Science. This will be an 'optional' co-operative education program providing experiential opportunities to supplement the students' academic curricula at SFU, with credit granted towards degree requirements. The Work Integrated Learning unit will provide management, staff and infrastructure for career preparation (training on topics such as resume and interview preparation, and workplace practices), job development and placement of students with companies performing work relevant to their degrees in Computing Science. New funding is required for a staff position to support this new program.

Rationale

SFU Computing Science has a large, high-quality graduate program with over 200 graduate students. We provide rigorous training in cutting edge areas of computing science via coursework and research. Upon graduation, many students seek jobs in industry, aiming to deploy these skills. Further, we have a large contingent of international students who have no Canadian industry experience. Many students would benefit from the industry skills, experience, and networking that a co-op program can provide. A survey of graduate students conducted in Fall 2011 indicated overwhelming support for a graduate co-op program.

Enrollment Data

Current headcount in Computing Science:
    MSc Course option students = 14

    MSc Project students = 9

    MSc thesis students = 83

Total Masters students = 106

    PhD students = 97

Total students = 203

Fall 2011 Survey

During the Fall 2011 current and recent graduated students of the graduate computing science school were surveyed on their interest in Co-operative Education, job types, salary expectations, and geographic locations. Ninety one (91) graduate students responded. Nearly all respondents indicated they wanted to participate in Co-op. Additional details are presented in Appendix A. The graduate interest is consistent with the current 85-90% participation rate of undergraduates in the existing Computing Science Co-op program.

Based on the survey, number of current co-op inquiries by grad students and the undergraduate participation rates, we can anticipate a high level of uptake of students in this new graduate co-op program.

Summary of Program Proposal

Students in Computing Science graduate programs may take up to three semesters of co-operative education practicum as an integral part of their studies. Each practicum counts 3 academic units towards degree requirements, subject to the following limitations.

1. In the thesis option of the Computing Science MSc program, students may use one 3-unit practicum towards the 15 units of required course work. The requirement for 12 units (4 courses) satisfying current breadth requirements is maintained.

2. In the project option of the Computing Science MSc program, students may use two 3-unit practicums towards the 24 units of required course work. The requirement for 18 units (6 courses) satisfying current breadth requirements is maintained.

3. In the course option of the Computing Science MSc program, students may use up to three 3-unit practicums towards the 30 units of required course work. The requirement for 18 units (6 courses) satisfying current breadth requirements is maintained.

4. PhD students may participate in the graduate co-op program, but may not count practicums towards course requirements.

The existing practicum courses of the ZU-SFU Graduate Dual Degree program (CMPT 626, 627 and 628) are proposed to be revised for general use in Computing Science graduate Co-op, in accord with the accompanying graduate course revision forms.

Appendix B includes the proposed revisions to calendar language of the Computing Science MSc and PhD programs.

Graduate Co-operative Enrolment Plan And Revenue

The following enrolment plan outlines the expected participation, reaching an anticipated steady-state enrolment of 75 placements per year in the third year.

	First year	Second year	Third year
	25 students	50 students	75 students
Practicum tuition ($693/work term)			
General Revenue	$17,325	$35,650	$51,975

Resource Requirements: Staffing and Operating:
A half time (.5 FTE) Co-ordinator APSA Grade 10 would be required for the first and second year of this program.

Current Computing Science co-op staff are working at full capacity. Moving forward with this new graduate level co-op program is dependent upon obtaining new funds to support a .5 FTE position.

If target numbers are reached there would be a need to move the position from part time to fulltime during the third year.

Salary and benefits:	$30,000 per year	
Operating:	$3000 per year	
Total Funding Required:	**$33,000**	**Year 1 & 2**
	$66,000	**Year 3**

The Faculty of Applied Sciences will provide bridging funding of $33,000 per year for the first three years of this program. Depending on enrolment and the further development of the Budget Allocation Model with respect to undergraduate and graduate co-op funding, a long-term funding plan will be developed in the third year for the steady-state operation.

Office Space:
The Faculty of Applied Sciences will provide an office within the Applied Sciences Building for the new grad-level Co-ordinator.

Student Graduation Times and Funding Impacts

MSc Course and Project students will see minimal impact on graduation times given the course credit obtained via co-op courses.

MSc Thesis and PhD students' graduation times may be affected by their participation in this program. Positive effects include increased communication and programming skills, and industrial knowledge that could improve the effectiveness of the students in their research programs. The direct negative effect will be an effective increase in the coursework performed by these students. These effects will be monitored closely by the students' Supervisory Committees, in particular by the Senior Supervisor.

Course and Project MSc students are not promised funding. For other students, the language of the students' funding promises will be changed to indicate that co-op terms are in lieu of funding provided directly by the School (RA, TA, scholarship). E.g. the following paragraphs could be added to the current offer letter.

The School of Computing Science at SFU offers a graduate co-op program, providing job placement in industry during students' degree programs. The co-op program matches students to jobs and assists with co-op work permits for international students. Co-op placements are paid positions at salaries typically ranging from $2,200 to $3,500 per month. Details on this program can be found on the School of Computing Science webpage.

For students with funding promises from the School of Computing Science, co-op work terms count as funded terms at a pro-rated funding level.

Appendix A – Fall 2011 Computing Science Grad Co-op Survey

A survey of current and recent SFU Computing Science graduate students (members of the cs-grads mailing list) was conducted from Nov. 15 – 21, 2011. Students were surveyed on interest in co-op, job types, salary expectations, and geographic locations. 91 students responded, and nearly all wanted co-op.

A summary of the survey results appears below.

Grad co-op survey

Q1. Please select which program you are in (Radio Buttons)

Program	Count
PhD	39
MSc - thesis	39
MSc - project	5
MSc - course	5
other	3

Q2. Would you have been interested in the following jobs at some point during your degree? Please select the approximate minimum monthly salary at which you would have been interested in such a job. (Rating Matrix)

	$2000/month	$2500/month	$3000/month	$4000/month	not interested
Research-related job	19	27	22	18	4
Software engineer	9	11	38	21	8
Software test engineer	9	13	23	9	31
Quality assurance	8	10	20	6	39
Web developer	8	11	27	12	27

Q3. Locations. Please select the geographical locations in which you would be interested in a co-op job. (Checkboxes)

Location	Count
Greater Vancouver	88
Other Canada (mostly Ontario)	60
USA	57

Appendix B – Calendar Changes – MSc Program

Current	Proposed
Program Requirements Students are accepted into the MSc program via the thesis, project or course option and acquire breadth of knowledge through the completion of a thesis, project or portfolio document. It is the expectation that students will complete all of the required work as required by each distinct program. Any change to a student's program option must be approved by the school's graduate program committee. **Breadth Requirement** Thesis MSc students will complete a breadth requirement consisting of five graduate courses (which is equivalent to 15 units). At least four of the courses must be drawn from Table 1 (below) so that at least one course must be from Area I - Algorithms and Complexity Theory and two of the four courses must be from two other Areas. Project MSc students will complete a breadth requirement consisting of eight graduate courses (which is equivalent to 24 units). At least six of the courses must be drawn from Table 1 (below) so that at least one course must be from Area I - Algorithms and Complexity Theory and so that the six courses cover at least three different Areas. Course MSc students will complete a breadth requirement consisting of ten graduate courses (equivalent to 30 units). At least six of those courses will be from courses that are listed in the five breadth areas, so that at least one course is from Area I - Algorithms and Complexity Theory, and six courses cover at least three different Areas.	**Program Requirements** Students complete 30 units of graduate work in one of three options chosen at the time of admission: thesis option, project option or course option. Each option consists of graduate course and optional practicum work satisfying certain breadth requirements plus a depth requirement consisting of a thesis, project or portfolio document. Any change to a student's program option must be approved by the school's graduate program committee. **Breadth Requirement** Thesis MSc students complete a breadth requirement of 15 units of graduate course or practicum work. At least 12 units must be completed through four courses drawn from Table 1 (below) so that at least one course must be from Area I - Algorithms and Complexity Theory and two of the four courses must be from two other Areas. Students may use one 3-unit practicum towards the 15 units of required course work. Project MSc students complete a breadth requirement consisting 24 units of graduate course or practicum work. At least 18 units must be completed through six courses drawn from Table 1 (below) so that at least one course must be from Area I - Algorithms and Complexity Theory and so that the six courses cover at least three different Areas. Students may use up to two 3-unit practicums towards the 24 unit requirement. Course MSc students complete a breadth requirement consisting of 30 units of graduate course or practicum work. At least 18 units must be completed through six courses drawn from Table 1 (below) so that at least one course must be from Area I - Algorithms and Complexity Theory and so that the six courses cover at least three different Areas. Students may use up to three 3-unit practicums towards the 30 unit requirement.

In addition, Table 2 is updated to include the Graduate Co-op Practicum courses as follows.

Current	Proposed
Table 2 • CMPT 880-3 Special Topics in Computing Science • CMPT 889-3 Special Topics in Interdisciplinary Computing • CMPT 894-3 Directed Reading	**Table 2** • CMPT 626-3 Graduate Co-op Practicum I • CMPT 627-3 Graduate Co-op Practicum II • CMPT 628-3 Graduate Co-op Practicum III • CMPT 880-3 Special Topics in Computing Science • CMPT 889-3 Special Topics in Interdisciplinary Computing • CMPT 894-3 Directed Reading

Calendar Changes – Computing Science PhD Program Requirements

Current	Proposed
Breadth Requirement PhD students who already possess an MSc in computing science or a related field must complete a breadth requirement of four graduate courses (which is equivalent to 12 units of graduate course work). At least three of the courses must be drawn from Table 1 so that they are all in different areas. PhD students who do not possess an MSc in computing science or a related field must complete a breadth requirement of eight graduate courses (which is equivalent to 24 units of graduate course work). At least six of the courses must be drawn from Table 1 and at least one course must be from Area I (Algorithms and Complexity Theory) so that the six courses cover at least three different areas.	**Breadth Requirement** PhD students who already possess an MSc in computing science or a related field must complete a breadth requirement of 12 units of graduate course work. At least 9 units must be completed through three courses drawn from Table 1 so that they are all in different areas. PhD students who do not possess an MSc in computing science or a related field must complete a breadth requirement of 24 units of graduate course work. At least 18 units must be completed through six courses drawn from Table 1 and at least one course must be from Area I (Algorithms and Complexity Theory) so that the six courses cover at least three different areas. PhD students may enter the Computing Science Graduate Co-operative Education Program but may not count practicums towards the breadth requirement.

This system is intended for broadcasting messages only and will accept NO replies. Replies or inquiries may be directed to the school secretary at antonia.mainella@sd41.bc.ca

_____

Graduate Course Minor Change Form

SIMON FRASER UNIVERSITY
DEAN OF GRADUATE STUDIES

This form is for an SFU department or program to request a minor change to an existing
and signature by the faculty graduate studies committee, this form should be forwarded t
for approval by the Senate Graduate Studies Committee (SGSC). SGSC will forward the approval to Senate for information.

▓▓▓▶ DEPARTMENT

Department / School / Program	Contact name	Contact email
Computing Science		

Please revise the following elements of the indicated graduate course:
☐ Catalogue number ✓ Units ☐ Title ✓ Description ✓ Other: **Prerequisite**, GRADING

▓▓▓▶ CURRENT COURSE

Please complete only the fields to be changed.

Program (eg. ECON)	Number (eg. 810)	Units (eg. 4)
CMPT	626	0 ✓

Course title (max 80 characters)

Short title (appears on transcripts, max 25 characters)

Course description for SFU Calendar ☐ see attached

This course is the first term of work experience in the School of Computing Science Co-operative Education Program for the students in the graduate dual degree master program. Units of this course do not count towards the units required for a Simon Fraser University degree.

Available course components ☐ Lecture ☐ Seminar
☐ Laboratory ☐ Practicum ☐ Online ☐ _____

Grading basis ☐ Graded ☐ Satisfactory / Unsatisfactory
☑ In Progress / Complete ☐ _____

Prerequisites (if any)

This is combined with an undergrad course. ☐ Yes ☐ No

Course number and units: _____

Additional course requirements for graduate students

▓▓▓▶ REVISED COURSE

Please complete only the fields to be changed.

Program (eg. ECON)	Number (eg. 810)	Units (eg. 4)
CMPT	626	3

✶

Course title (max 80 characters)

Short title (appears on transcripts, max 25 characters)

Course description for SFU Calendar ☐ see attached

This course is the first term of work experience in the School of Computing Science Co-operative Education Program for graduate students. Units of this course do not count towards computing science breadth requirements.

Available course components ☐ Lecture ☐ Seminar
☐ Laboratory ☑ Practicum ☐ Online ☐ _____

Grading basis ☐ Graded ☑ Satisfactory / Unsatisfactory
☐ In Progress / Complete ☐ _____

Prerequisites (if any)

12 units of CMPT coursework at the 700-level or higher with a CGPA of at least 3.0.

This is combined with an undergrad course. ☐ Yes ☐ No

Course number and units: _____

Additional course requirements for graduate students

▓▓▓▶ APPROVALS

R. CAMERON
Faculty graduate studies committee name

R. Cameron
Signature

JUNE 6, 2012
Date

M. ELECH
Senate graduate studies committee name

Signature

18 June 2012
Date

SIMON FRASER UNIVERSITY
DEAN OF GRADUATE STUDIES

Graduate Course Minor Change Form

This form is for an SFU department or program to request a minor change to an existing gr
and signature by the faculty graduate studies committee, this form should be forwarded to the Dean of Graduate Studies
for approval by the Senate Graduate Studies Committee (SGSC). SGSC will forward the approval to Senate for information.

▰▰▰▷ DEPARTMENT

Department / School / Program	Contact name	Contact email
Computing Science		

Please revise the following elements of the indicated graduate course:
☐ Catalogue number ✔ Units ☐ Title ✔ Description ✔ Other: **Prerequisite, Grading**

▰▰▰▷ CURRENT COURSE
Please complete only the fields to be changed.

▰▰▰▷ REVISED COURSE
Please complete only the fields to be changed.

Program (eg. ECON)	Number (eg. 810)	Units (eg. 4)
CMPT	627	0 ✔

Course title (max 80 characters)

Short title (appears on transcripts, max 25 characters)

Course description for SFU Calendar ☐ see attached

Following CMPT 626, this course is the second term of work experience in the School of Computing Science Co-operative Education Program for the students in the graudate dual degree master program. Units of this course do not count towards the units required for a Simon Fraser University degree.

Available course components ☐ Lecture ☐ Seminar
☐ Laboratory ☐ Practicum ☒ Online ☐ _____

Grading basis ☐ Graded ☐ Satisfactory / Unsatisfactory
☒ In Progress / Complete ☐ _____

Prerequisites (if any)

This is combined with an undergrad course. ☐ Yes ☐ No
Course number and units: _____
Additional course requirements for graduate students

Program (eg. ECON)	Number (eg. 810)	Units (eg. 4)
CMPT	627	3

Course title (max 80 characters)

Short title (appears on transcripts, max 25 characters)

Course description for SFU Calendar ☐ see attached

This course is the second term of work experience in the School of Computing Science Co-operative Education Program for graduate students. Units of this course do not count towards computing science breadth requirements.

Available course components ☐ Lecture ☐ Seminar
☐ Laboratory ☐ Practicum ☐ Online ☐ _____

Grading basis ☐ Graded ☒ Satisfactory / Unsatisfactory
☐ In Progress / Complete ☐ _____

Prerequisites (if any)
CMPT 626 and a CGPA of at least 3.0.

This is combined with an undergrad course. ☐ Yes ☐ No
Course number and units: _____
Additional course requirements for graduate students

▰▰▰▷ APPROVALS

R. CAMERON	R. Cameron (signature)	JUNE 6, 2012
Faculty graduate studies committee name	Signature	Date
ME KELL	(signature)	18 JUNE 2012
Senate graduate studies committee name	Signature	Date

SFU SIMON FRASER UNIVERSITY
DEAN OF GRADUATE STUDIES

Graduate Course Minor Change Form

This form is for an SFU department or program to request a minor change to an existing graduate course. After approval and signature by the faculty graduate studies committee, this form should be forwarded to the Dean of Graduate Studies for approval by the Senate Graduate Studies Committee (SGSC). SGSC will forward the approval to Senate for information.

DEPARTMENT

Department / School / Program	Contact name	Contact email
Computing Science		

Please revise the following elements of the indicated graduate course:
☐ Catalogue number ✓ Units ☐ Title ✓ Description ✓ Other: **Prerequisite**, GRADING

CURRENT COURSE

Please complete only the fields to be changed.

Program (eg. ECON)	Number (eg. 810)	Units (eg. 4)
CMPT	628	0 ✓

Course title (max 80 characters)

Short title (appears on transcripts, max 25 characters)

Course description for SFU Calendar ☐ see attached
Following CMPT 626 and 627, this course is the third term of work experience in the School of Computing Science Co-operative Education Program for the students in the graduate dual degree master program. Units from this course do not count towards the units required for a Simon Fraser University degree.

Available course components ☐ Lecture ☐ Seminar
☐ Laboratory ☐ Practicum ☐ Online ☐ _____

Grading basis ☐ Graded ☐ Satisfactory / Unsatisfactory
☑ In Progress / Complete ☐ _____

Prerequisites (if any)

This is combined with an undergrad course. ☐ Yes ☐ No
Course number and units: _____

Additional course requirements for graduate students

REVISED COURSE

Please complete only the fields to be changed.

Program (eg. ECON)	Number (eg. 810)	Units (eg. 4)
CMPT	628	3

Course title (max 80 characters)

Short title (appears on transcripts, max 25 characters)

Course description for SFU Calendar ☐ see attached
This course is the third term of work experience in the School of Computing Science Co-operative Education Program for graduate students. Units of this course do not count towards computing science breadth requirements.

Available course components ☐ Lecture ☐ Seminar
☐ Laboratory ☐ Practicum ☐ Online ☐ _____

Grading basis ☐ Graded ☑ Satisfactory / Unsatisfactory
☐ In Progress / Complete ☐ _____

Prerequisites (if any)
CMPT 627 and a CGPA of at least 3.0.

This is combined with an undergrad course. ☐ Yes ☐ No
Course number and units: _____

Additional course requirements for graduate students

APPROVALS

R. CAMERON _____ *R. Cameron* _____ JUNE 6, 2012
Faculty graduate studies committee name   Signature   Date

NE KEU _____ _____ 18 June 2012
Senate graduate studies committee name   Signature   Date

SFU Connect   **sheilagh@sfu.ca**

Fwd: Graduate Co-op Program in Computing Science

From : Wade Parkhouse <wade_parkhouse@sfu.ca>   Tue, May 22, 2012 09:07 AM

Subject : Fwd: Graduate Co-op Program in Computing Science

    To : Sheilagh MacDonald <sheilagh@sfu.ca>

Please include in the documentation for the CS coop program for SGSC.

From: "Muriel Klemetski" <klemetsk@sfu.ca>
To: "Wade Parkhouse" <wade_parkhouse@sfu.ca>
Cc: "Nancy Johnston" <davidge@sfu.ca>
Sent: Thursday, 17 May, 2012 17:19:21
Subject: Re: Graduate Co-op Program in Computing Science

Hi Wade - I really appreciate you forwarding the info to our unit for review. Fortunately we have worked closely with the Computing Science folks on this one and had input on the proposal throughout the development of the initiative. All is good from the WIL/Co-op perspective.

NB- in the proposal we made it very clear that additional funds are required to support this new co-op program. FAS has agreed to fund this program for the first three years at a half time FTE level. We do not have the capacity with existing staff - new staff are needed.

If you or anyone else has questions please feel free to call on me.

Muriel

From: "Wade Parkhouse" <wade_parkhouse@sfu.ca>
To: "Muriel Klemetski" <klemetsk@sfu.ca>
Sent: Wednesday, May 16, 2012 10:07:30 AM
Subject: Fwd: Graduate Co-op Program in Computing Science

FYI - I just rec'd this and have not had time to review. Comments appreciated.

From: "Rob Cameron" <cameron@sfu.ca>
To: "Sheilagh MacDonald" <sheilagh@sfu.ca>
Cc: "Marilyn Trautman" <mtrautma@sfu.ca>, "Wade Parkhouse"

<wade_parkhouse@sfu.ca>
Sent: Wednesday, 16 May, 2012 09:59:59
Subject: Graduate Co-op Program in Computing Science

Hi, Sheilagh.

Can you please put the attached proposal for a
graduate co-op program in Computing Science on the
agenda of the next Senate Graduate Studies Committee
meeting?   It has now been approved through the
School of Computing Science and the Faculty of
Applied Sciences Graduate Program Committee.

Thanks.

Robert D. Cameron, Ph.D
Professor of Computing Science
Associate Dean of Applied Sciences
Simon Fraser University

_____