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MEMORANDUM

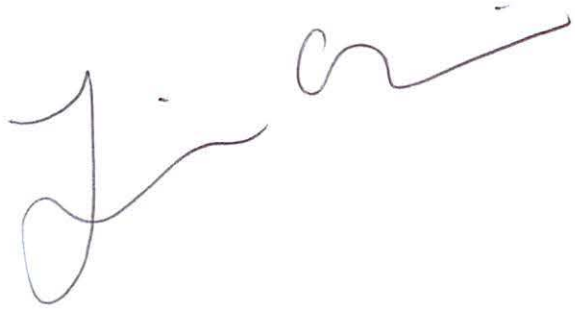
ATTENTION	Senate	**DATE**	March 18, 2014
FROM	Jon Driver, Vice-President, Academic and Provost, and Chair, SCUP	**PAGES**	1/1
RE:	Faculty of Applied Sciences: Full Program Proposal for a Concurrent Bachelor's-Master's Program in Computing Science (SCUP 14-09)		

At its March 12, 2014 meeting, SCUP reviewed and approved the Full Program Proposal for a Concurrent Bachelor's – Master's Program in Computing Science in the School of Computing Science within the Faculty of Applied Sciences, effective Fall 2014.

Motion:

That Senate approve and recommend to the Board of Governors the Full Program Proposal for a Concurrent Bachelor's – Master's Program in Computing Science in the School of Computing Science within the Faculty of Applied Sciences, effective Fall 2014.

c: U. Glaesser
R. Zhang



SFU Dean of Graduate Studies

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MEMORANDUM

ATTENTION	SCUP	DATE	6 February 2014
FROM	Wade Parkhouse, Dean of Graduate Studies	No.	GS2014.04
RE:	Concurrent BSc-MSc Program in Computing Science		

At its meeting 3 February 2014, SGSC approved the proposal for a Concurrent BSc-MSc Program in Computing Science and is recommending it to SCUP.

Effective Date: Fall 2014

Faculty of Applied Science **[GS2014.04]**
School of Computing Science

Motion:
That SCUP approve and recommend to Senate the proposal for a Concurrent BSc-MSc Program in Computing Science

Faculty of Applied Sciences
Graduate Program Committee

Proposal for a Concurrent BSc-MSc Program in Computing Science

Robert D. Cameron, Richard Zhang
January 10, 2014

Introduction

1. Rationale for the proposal.

The primary rationale for the proposed new concurrent BSc-MSc in Computing Science is to encourage and recruit more highly-qualified SFU undergraduates into our graduate program. We hope to address two principal challenges. First, with strong industry demand for BSc graduates of the program, and an average completion time of well over two years in our MSc program, it is difficult to recruit our own top students into graduate studies. Second, our graduate program suffers from a lack of applications from domestically trained undergraduates, resulting in an imbalance in domestic vs. international students with a preponderance of international students. We anticipate that this program will partially address this issue as our undergraduate program has a large number of domestic students and the shorter timeline to Master's degree completion associated with this program should create an attractive option. Finally, a secondary rationale for the concurrent program is to assist in the recruitment of top high school students into our BSc program, with a clear rapid-track route to both the BSc and MSc degrees.

2. Aims and objective of the proposed program, and any distinctive features.

The combined BSc-MSc program aims to prepare students for two alternative paths: for advanced research work involving subsequent PhD studies or for advanced industrial work in the high-tech sector.

3. Relationship to the department's regularly offered bachelor's and Master's programs.

The program is designed for compatibility with the existing thesis and course MSc options of the Computing Science graduate program as well as the undergraduate major and honours programs (and related joint programs) leading to the BSc in Computing Science. Students will have the option of transferring out of the concurrent program to the regular program at any time.

4. Proposed date of implementation.

The program is proposed for September 2014 implementation.

Section 2. Program

1. A description of the proposed program of study outlining how it is integrated with the existing bachelor's and master's degrees.

The program consists of two phases, completion of the BSc using up to 3 CMPT graduate courses for credit towards computing science major or honours requirements, followed by the MSc completion phase. The courses counted towards both the BSc and MSc are called the "concurrent courses" and are structured so that the students make good progress towards satisfying the normal MSc breadth requirements while taking concurrent courses. The concurrent courses are taken during the BSc completion phase and must include only regular graduate courses published in the calendar in Table I laying out the five graduate breadth areas. At most two courses may be in any one area, and at most one course may be at the 800 level. Upon completion of the BSc phase, the students may use the concurrent courses towards MSc completion, otherwise satisfying all requirements of the MSc. The university time limits of the thesis (currently 18 months) and non-thesis (currently 12 months) options apply.

2. Specific emphases/specializations toward either degree in the Concurrent Program (if appropriate).
There are no restrictions to area or specialization in the proposed program.
3. Description of any proposed changes to existing programs that are required to offer the concurrent Bachelor's-Master's program.
No changes to the calendar text of the undergraduate program are proposed. Students may use the concurrent courses for satisfying existing requirements in these program for course requirements described in the calendar as "additional CMPT courses numbered 400 or above".
4. Specific time-lines (when undergraduates may apply for this program; when each of the milestones needs to be accomplished). Please refer to the admission criteria approved by Senate.
Students may apply to the concurrent program upon completing 90 undergraduate credits including at least 24 upper division CMPT units with an overall CGPA of 3.67 or better. Upon completion of BSc requirements, students have 12 months to complete MSc requirements for a course-based MSc and 18 months to complete requirements for a thesis-based MSc.
5. Minimum requirements to be admitted to the program which may be more than the University minimum but not less.
Students must meet University minimums and must also satisfy the requirement for completion of at least 24 upper division units of CMPT courses.
6. Provisions in case a student is not able to complete the program.
Students will have the option of transferring out of the concurrent program to the regular program at any time.
7. Projected enrollment.
Approximately 8 students per year are expected to be admitted to the program.

Section 3. Projected Need
1. Student demand for the program.
Although many of our BSc graduates have an aptitude and attitude well-suited towards graduate work, too few of them proceed to graduate studies because of the attractive opportunities available in industry and the perceived length of time necessary for completion of a graduate degree. We anticipate strong demand for the concurrent BSc-MSc from these students.
2. Opportunities for placement of graduates/eligibility for admission to Ph.D. programs upon completion.
The MSc in Computing Science is well-regarded in both industry and academia. Graduates of the concurrent BSc-MSc program are expected to be particularly in demand with a proven record of timely completion of a challenging program.
3. Ways in which the program will meet the needs of society, academic unit and student.
The program will benefit society by increasing the number of highly-trained computing specialists available in the work force. The School of Computing Science will benefit through recruitment of more of its undergraduates into the graduate program, potentially into the research-intensive MSc thesis option. This could either increase the number of students overall in the program and/or the quality. The students will benefit through a fast-track route to completion of an advanced computing science degree.

Section 4. Resource Requirements
1. The extent of the additional workload for faculty in the department/program.
The program does not impose a heavy additional workload. Indeed, if the number of MSc graduate program spaces is kept constant, then there is a workload reduction in that some students will have completed work towards the MSc while completing BSc requirements.
2. The advising structure of students in this program.
During the BSc completion phase, students will be advised by members of the FAS Student Affairs Unit, as well as by faculty advisors who will ultimately write recommendations for admission. During the MSc completion phase, students will be advised by their senior supervisor (thesis option

students) or the graduate program committee (non-thesis students).
3. The estimated resource requirements, if any, and include a budget for the first five years of the program's operation. Include all that apply from the following: Faculty FTE; Library acquisitions; Computing costs; Equipment; Space and other capital facilities; Other operating costs; Graduate student support; Staffing requirements and costs
No additional budget or resources are proposed specifically for this program.
4. Indicate the intended method of funding these additional costs, if any.
Not applicable.

Section 5. Proposed Calendar Text

The following calendar text is proposed for insertion immediately after the section on "Supervisory Committees under the Computing Science Master of Science program.

Concurrent Bachelor's-Master's Program in Computing Science

Students in a Bachelor's degree program at SFU are qualified to be admitted into the concurrent Bachelor's-Master's program in Computing Science provided that they have satisfactorily completed at least 90 credits of undergraduate work with a CGPA of at least 3.67/4.33 including at least 24 credits of upper division CMPT course work. To be admitted to the program, the student must submit evidence, usually reference letters, from qualified referees of the student's ability to undertake advanced work in the area of interest, and must satisfy typical admission requirements set by the graduate program committee.

Students in the Concurrent Bachelor's-Master's programs must fulfill the degree requirements of both the bachelor's program and the master's program in Computing Science. A minimum GPA of 3.0 should be maintained while in the graduate portion of the program. The culmination of the concurrent program is the master's degree. Students are expected to complete the master's degree within 12 months of completion of the bachelor's degree for a course-based, non-thesis master's degree and within 18 months for a master's program requiring a thesis.

Students admitted into the concurrent Bachelor's-Master's program may take up to 9 units of graduate courses (the "concurrent courses") that may be counted towards both the bachelor's degree and the master's degree subject to the following conditions. Only courses listed in the five breadth areas of Table I above may be taken as concurrent courses. At most two courses from any one area may be used. At most one course numbered 800 or above may be used. The concurrent courses may be used towards the master's program requirements of the thesis option only if all other requirements are met within 18 months of completion of the bachelor's degree requirements. The concurrent courses may be used towards master's program requirements of a non-thesis option only if all other requirements are met within 12 months of completion of the bachelor's degree requirements.

Transferring from the concurrent programs to the regular programs is possible: a student may withdraw at any time from an approved Concurrent Bachelor's-Master's program by informing the Chairs of the Undergraduate and Graduate Programs and the Dean of Graduate Studies in writing.

Table 1

AREA I – ALGORITHMS AND COMPLEXITY THEORY

CMPT 701 - Computability and Logic (3)
CMPT 705 - Design and Analysis of Algorithms (3)
CMPT 710 - Computational Complexity (3)
CMPT 711 - Bioinformatics Algorithms (3)
CMPT 813 - Computational Geometry (3)
CMPT 814 - Algorithmic Graph Theory (3)
CMPT 815 - Algorithms of Optimization (3)
CMPT 881 - Special Topics in Theoretical Computing Science (3)

AREA II – NETWORKS, SOFTWARE AND SYSTEMS

CMPT 730 - Programming Languages (3)
CMPT 745 - Software Engineering (3)
CMPT 760 - Operating Systems (3)
CMPT 765 - Computer Communication Network (3)
CMPT 771 - Internet Architecture and Protocols (3)
CMPT 777 - Formal Verification (3)
CMPT 816 - Theory of Communication Networks (3)
CMPT 885 - Special Topics in Computer Architecture (3)
CMPT 886 - Special Topics in Operating Systems (3)

AREA III – ARTIFICIAL INTELLIGENCE

CMPT 721 - Knowledge Representation and Reasoning (3)
CMPT 726 - Machine Learning (3)
CMPT 823 - Formal Topics - Knowledge Representation (3)
CMPT 825 - Natural Language Processing (3)
CMPT 826 - Automated Learning and Reasoning (3)
CMPT 827 - Intelligent Systems (3)
CMPT 882 - Special Topics in Artificial Intelligence (3)

AREA IV – DATABASES, DATA MINING AND COMPUTATIONAL BIOLOGY

CMPT 505 - Problem Based Learning in Bioinformatics (3)

CMPT 740 - Database Systems (3)

CMPT 741 - Data Mining (3)

CMPT 829 - Special Topics in Bioinformatics (3)

CMPT 843 - Database and Knowledge-base Systems (3)

CMPT 884 - Special Topics in Database Systems (3)

AREA V – GRAPHICS, HCI, VISION AND VISUALIZATION

CMPT 761 - Image Synthesis (3)

CMPT 764 - Geometric Modelling in Computer Graphics (3)

CMPT 767 - Visualization (3)

CMPT 768 - Computer Music Theory and Sound Synthesis (3)

CMPT 820 - Multimedia Systems (3)

CMPT 822 - Computational Vision (3)

CMPT 828 - Illumination in Images and Video (3)

CMPT 888 - Special Topics in Computer Graphics, HCI, Vision and Visualization (3)