SFU OFFICE OF THE ASSOCIATE VICE-PRESIDENT, ACADEMIC

8888 University Drive, TEL: 778.782.4636 avpcio@sfu.ca
Burnaby, BC FAX: 778.782.5876 www.sfu.ca/vpacademic
Canada V5A 1S6

MEMORANDUM

ATTENTION	Senate	**DATE**	February 5, 2016
FROM	Gordon Myers, Chair	**PAGES**	1/1
	Senate Committee on		
	Undergraduate Studies		
RE:	Faculty of Applied Sciences (SCUS 16-03)		

For information:

Acting under delegated authority at its meeting of February 4, 2016 SCUS approved the following curriculum revisions effective Fall 2016.

1. <u>School of Computing Science (SCUS 16-03a)</u>

    (i) Lower division requirement changes to the Computing Studies Certificate
    (ii) Prerequisite change to CMPT 479
    (iii) Temporarily withdraw CMPT 212, 301, 370, 418, 467
        Retain as active: CMPT 408, 456, 461 and 466

2. <u>School of Engineering Science (SCUS 16-03b)</u>

    (i) Changes to the continuance requirements
    ii) Temporarily withdraw ENSC 376

3. <u>School of Mechatronic Systems Engineering (SCUS 16-03c)</u>

    (i) Requirement changes for internal transfers
    (ii) New Course Proposal: MSE 211-3, Computational Methods for Engineers

SFU FACULTY OF APPLIED SCIENCES

OFFICE OF THE DEAN
8888 University Drive, Burnaby, BC   TEL: 778.782.4724   www.fas.sfu.ca
Canada V5A 1S6   FAX: 778.782.5802

MEMORANDUM

ATTENTION	Senate Committee on Undergraduate Studies	**DATE**	December 15, 2015
FROM	Ed Park, Associate Dean	**PAGES**	
RE:	Curriculum Changes		

The following changes have been approved by the FAS Undergraduate Curriculum Committee and are appended here for approval by SCUS and recommendation to Senate.

1.) School of Computing Science
    a.   Calendar Changes
        • CMPT Certificate

    b.   Course Prerequisite Changes
        • CMPT 479

2.) School of Engineering Science
    a.   Calendar Changes
        • Second Degree Admissions Requirements
        • Continuation GPA

3.) School of Mechatronic Systems Engineering
    a.   Calendar Changes
        • Internal Transfer Requirements for former MSE students

Thank you,

Edward Park
Associate Dean

(EP/mt)

Revision to Computing Studies Certificate

John Edgar

December 2015

Description
Change Certificate to update and streamline requirements.

Rationale
The certificate is out of date and has overly complex requirements.

SFU requires that a certificate "at least 18-30 units". The proposed syllabus is a minimum to meet that requirement, while still giving students a solid introduction to CS and programming.

Program Requirements

~~Lower Division Requirements~~

~~Students should normally complete 18-19 units including one of*~~

~~CMPT 125 - Introduction to Computing Science and Programming II (3)~~
~~CMPT 126 - Introduction to Computing Science and Programming (3)~~

~~and all of~~

~~CMPT 150 - Introduction to Computer Design (3)~~
~~CMPT 225 - Data Structures and Programming (3)~~
~~MACM 101 - Discrete Mathematics I (3)~~

~~and one of~~

~~MATH 150 - Calculus I with Review (4)~~
~~MATH 151 - Calculus I (3)~~
~~MATH 154 - Calculus I for the Biological Sciences (3) **~~
~~MATH 157 - Calculus I for the Social Sciences (3) **~~

and one of

CMPT 250 - Introduction to Computer Architecture (3)
CMPT 275 - Software Engineering I (4)

and one of

PHIL 100W - Knowledge and Reality (3)
PHIL 120W - Moral Problems (3)
any 100 division ENGL course

*to aid your choice, prior to enrolment, consult an Applied Sciences Advisor.
** with a grade of at least B+, and with school permission

Students complete at least 18 units of CMPT or MACM courses including:

- CMPT 225 Data Structures and Programming (3)*

- 3 credits of upper division CMPT courses chosen from the following list.

*Students are responsible for meeting the prerequisites for this course: introductory computer science ((CMPT 125 and 127), CMPT 126 or CMPT 135) and discrete math (MACM 101) or their equivalents. Note that completion of these courses counts towards the 18 units required for the certificate.

ARTIFICIAL INTELLIGENCE

CMPT 310 - Artificial Intelligence Survey (3)
CMPT 340 - Biomedical Computing (3)
CMPT 411 - Knowledge Representation (3)
CMPT 412 - Computational Vision (3)
CMPT 413 - Computational Linguistics (3)
CMPT 414 - Model-Based Computer Vision (3)
CMPT 417 - Intelligent Systems (3)
CMPT 418 - Computational Cognitive Architecture (3)

CMPT 419 - Special Topics in Artificial Intelligence (3)

COMPUTER GRAPHICS AND MULTIMEDIA

CMPT 361 - Introduction to Computer Graphics (3)
CMPT 363 - User Interface Design (3)
CMPT 365 - Multimedia Systems (3)
CMPT 461 - Image Synthesis (3)
CMPT 464 - Geometric Modelling in Computer Graphics (3)
CMPT 466 - Animation (3)
CMPT 467 - Visualization (3)
CMPT 468 - Introduction to Computer Music and Sound Synthesis (3)
CMPT 469 - Special Topics in Computer Graphics (3)

COMPUTING SYSTEMS

CMPT 300 - Operating Systems I (3)
CMPT 305 - Computer Simulation and Modelling (3)
CMPT 371 - Data Communications and Networking (3)
CMPT 379 - Principles of Compiler Design (3)
CMPT 431 - Distributed Systems (3)
CMPT 433 - Embedded Systems (3)
CMPT 471 - Networking II (3)
CMPT 479 - Special Topics in Computing Systems (3)
CMPT 499 - Special Topics in Computer Hardware (3)

INFORMATION SYSTEMS

CMPT 301 - Information Systems Management (3)
CMPT 354 - Database Systems I (3)
CMPT 370 - Information System Design (3)
CMPT 441 - Computational Biology (3)
CMPT 454 - Database Systems II (3)
CMPT 456 - Information Retrieval and Web Search (3)
CMPT 459 - Special Topics in Database Systems (3)
CMPT 470 - Web-based Information Systems (3)
CMPT 474 - Web Systems Architecture (3)

PROGRAMMING LANGUAGES AND SOFTWARE

CMPT 373 - Software Development Methods (3)

CMPT 375 - Mathematical Foundations of Software Technology (3)

CMPT 383 - Comparative Programming Languages (3)

CMPT 384 - Symbolic Computing (3)

CMPT 473 - Software Quality Assurance (3)

CMPT 475 - Requirements Engineering (3)

CMPT 477 - Introduction to Formal Verification (3)

CMPT 489 - Special Topics in Programming Language (3)

THEORETICAL COMPUTING SCIENCE

CMPT 307 - Data Structures and Algorithms (3)

CMPT 308 - Computability and Complexity (3)

CMPT 404 - Cryptography and Cryptographic Protocols (3)

CMPT 405 - Design and Analysis of Computing Algorithms (3)

CMPT 407 - Computational Complexity (3)

CMPT 408 - Theory of Computing Networks/Communications (3)

CMPT 409 - Special Topics in Theoretical Computing Science (3)

SFU SENATE COMMITTEE ON UNDERGRADUATE STUDIES

| COURSE SUBJECT | CMPT | NUMBER | 479 | TITLE | Special Topics in Computing Systems |

INSTRUCTIONS (OVERALL):

1. Using Microsoft Word draft changes using the following guideline. Paste in box below.
2. Rationale must be included. If more space is needed than provided below, please use the provided text box on page 2 of this document.
3. Indicate term = Fall, Spring, Summer

TYPE OF CHANGES RECOMMENDED

Please type 'X' for the appropriate revision(s):

	Course number		Credit	Title	Description	X	Prerequisite		Deletion

WORDING/DESCRIPTION EDITS

1. Indicate deleted or changed text using ~~strikethrough~~.
2. Indicate added or new text using underline.
3. Equivalent courses: preclusion statement should read:
   a. Students with credit for x cannot take y for further credit.

CMPT <u>300</u> ~~401 or 431~~.

SAMPLE

POL 223 ~~Canadian~~ <u>American</u> Political Economy (3)

~~An introductory study of~~ <u>America's</u> ~~Canada's~~ political economy, stressing the interrelated nature of Canada's economic and political life. ~~The course~~ <u>F</u>ocuses on current economic problems and policies, taking into account the geographical, historical and political environments. Topics include the resource and industrial structures, research and development, the public sector, fiscal and monetary policy, the role of the state, trade and foreign ownership, energy, regional disparity, corporate concentration and the political economy of federalism.

~~This course is identical to CNS 280 and students cannot take both courses for credit.~~
<u>Students with credit for CNS 280 cannot take POL 223 for further credit.</u>

~~Recommended~~ <u>Pre-requisite:</u> POL 100 or 101W.

Breadth – Social Sciences.

RATIONALE

If more space is needed, please use the provided text box on page 2 of this document

The CMPT 431 prerequisite precludes special topics not specifically related to Distributed Systems and CMPT 401 is no longer offered. A single 300 level prerequisite brings this course in line with our other Special Topics courses.

EFFECTIVE TERM AND YEAR, FOR CHANGES

Fall, Spring, Summer and year (please enter in textbox)

Fall 2016

January 2015

SFU FACULTY OF APPLIED SCIENCES

MEMORANDUM

ATTENTION	Jo Hinchliffe, Associate Registrar Senate and Academic Studies	**DATE** Feb 4, 2016
FROM	Ed Park, Associate Dean	**PAGES**
RE:	Temporarily Withdrawn Courses	

The following course status changes have been reviewed by the Undergraduate Curriculum Chairs within our Schools and approved by the FAS Undergraduate Curriculum Committee.

TW = Temporarily Withdrawn

CMPT	212	APSC	Object-Oriented Applications Design in C++	Move to TW
CMPT	301	APSC	Information Systems Management	Move to TW
CMPT	370	APSC	Information System Design	Move to TW
CMPT	408	APSC	Theory of Computing Networks/Communications	Retain as Active
CMPT	418	APSC	Computational Cognitive Architecture	Move to TW
CMPT	456	APSC	Information Retrieval and Web Search	Retain as Active
CMPT	461	APSC	Image Synthesis	Retain as Active
CMPT	466	APSC	Animation	Retain as Active
CMPT	467	APSC	Visualization	Move to TW
ENSC	376	APSC	Introduction to Optical Engineering and Design	Move to TW (deletion intended)

Thank you,

Edward Park
Associate Dean

(EP/mt)

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Revision to Minimum Grade Point Averages for Engineering Science

Faculty of Applied Sciences Curriculum Committee

Submitted by Marinko Sarunic and Margaret Crandell

December 2015

Description and Rationale

Continuance CGPA: Purpose: to implement a continuance GPA for our program. Students falling below the continuance GPA will be moved to BGS.

Minimum Grade Requirement

A C- grade or better in prerequisite courses is required to register in engineering science courses.

Minimum Grade Point Averages

~~The program requires a cumulative grade point average (CGPA) and an upper division grade point average (UDGPA) each of at least 2.0 in accordance with University graduation requirements.~~

<u>Engineering science students must maintain a cumulative grade point average (CGPA) of at least 2.2 to remain in the program. Students with CGPA falling below this minimum after one year from the time of admission to Engineering Science will be moved to the Bachelor of General Studies in Applied Sciences.</u>

A m~~M~~inimum 2.4 CGPA is required for direct registration in upper division courses. Faculty of Applied Science students with a CGPA below 2.4 need to see an advisor to register in these courses. Other Faculties' students may not register with a CGPA below 2.4.

Co-operative Education Work Experience

Every engineering science student completes a three term co-operative education program of practical experience in an appropriate industrial or research setting leading to a project under the technical direction of a practicing engineer or scientist. The goal is a complementary combination of work in an industrial or research setting and study in one of the engineering options. The internship may be within the University but in most cases the work site is off campus.

After the first year, students typically alternate between academic and work terms.

At least two of the three mandatory work terms must be completed in industry (ENSC 195, 295, 395). Students may participate in additional work terms but are encouraged to seek diversity in their experience. The three mandatory work terms may include one special co-op term (ENSC 196, 296, 396). Special co-op may include, but is not restricted to, self-directed, entrepreneurial, service or research co-op work terms. Permission of the engineering science co-op office is required.

An optional non-technical work term (ENSC 194) is also available through the engineering science co-operative education office and is often completed after the first two study terms. ENSC 194 does not count toward the mandatory three course requirement.

1. Calendar amendment: Revision to the Internal Transfer requirements for the MSE Major program (special criteria for former MSE students)

Description/Rationale: MSE students whose CGPA falls below 2.0 in two consecutive terms are deregistered from the program and moved to the Bachelor of General Studies in Applied Sciences program (while participating in BOT).

As they want to come back to the program, they continue to take MSE courses. The result is that we have a number of students who are close to graduation and would like to reenter the program, but whose CGPA is less than the required minimum for internal transfer. There are also implications for continued participation in Co-op for these students if not in MSE. As a number of MSE students graduate with the CGPA between 2.0 and 2.5, we would like to provide an exit pathway for former MSE students in a similar situation.

Internal Transfer from Another Simon Fraser University Program

Simon Fraser University students who wish to transfer to mechatronics from another faculty must have a Simon Fraser University cumulative grade point average (CGPA) of at least 2.5 and must have been enrolled in at least 12 Simon Fraser University units in the term prior to requesting the transfer to the School of Mechatronic Systems Engineering.

Former MSE students wishing to gain reentry to the MSE program require, at minimum:

1. *completion of at least 100 units*
2. *a term GPA of at least 2.67 (B-) in each of the two preceding terms*
3. *a minimum CGPA of 2.0*
4. *registration in at least 12 units in the term prior to admission*
5. *no more than 5 repeats*

Residency Requirements and Transfer Credit
The University's residency requirement stipulates that, in most cases, total transfer and course challenge credit may not exceed 60 units, and may not include more than 15 as upper division work.

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Canada V5A 1S6   FAX: 778.782.5802

MEMORANDUM ───────────────────────────────────────

ATTENTION	Senate Committee on Undergraduate Studies	**DATE**	Jan 22, 2016
FROM	Ed Park, Associate Dean	**PAGES**	
RE:	Curriculum Changes		

The following changes have been approved by the FAS Undergraduate Curriculum Committee and are appended here for approval by SCUS and recommendation to Senate.

1.)   School of Mechatronic Systems Engineering
     a.   New Course Proposal
          • MSE 211 – Computational Methods for Engineers

Thank you,

Edward Park
Associate Dean

(EP/mt)

COURSE SUBJECT | MSE   **NUMBER** | 211

COURSE TITLE

LONG — for Calendar/schedule, no more than 100 characters including spaces and punctuation

Computational Methods for Engineers

AND

SHORT — for enrollment/transcript, no more than 30 characters including spaces and punctuation

Computational Methods for Engineers

CAMPUS where course will be normally taught: ☐ Burnaby ☒ Surrey ☐ Vancouver ☐ Great Northern Way ☐ Off campus

COURSE DESCRIPTION (FOR CALENDAR). 50 WORDS MAXIMUM. ATTACH A COURSE OUTLINE TO THIS PROPOSAL

A course focusing on solving of engineering problems with computational methods. Students with credit for MCAM 316 may not take this course for further credit. Prerequisite: MATH152 or equivalent, and MATH 232 or equivalent.

REPEAT FOR CREDIT ☒ YES ☐ NO   How many times? 3   Within a term? ☐ YES ☒ NO

LIBRARY RESOURCES

NOTE: Senate has approved (S.93-11) that no new course should be approved by Senate until funding has been committed for necessary library materials. Each new course proposal must be accompanied by a library report and, if appropriate, confirmation that funding arrangements have been addressed.

Library report status, see lib.sfu.ca/collections/course-assessments | No additional material is required

RATIONALE FOR INTRODUCTION OF THIS COURSE

If more space is needed, please use the provided text box on page 4 of this document

Computational Methods for Engineers is a course that introduces numerical methods for solving different types of engineering problems. The course includes four laboratories and a course project in which students have to perform hands-on experiments, build and measure systems, and compare their outputs with the results obtained using numerical methods. The course has been tailored to prepare 3rd year engineering students for courses within the School of Mechatronic Systems Engineering that require numerical methods, such as, Linear Systems, System Modeling and Simulation, Heat transfer, and technical electives.

SCHEDULING AND ENROLLMENT INFORMATION

Term and year course would first be offered (e.g. FALL 2014) | Spring 2016

Term(s) in which course will typically be offered ☒ Spring ☐ Summer ☐ Fall

☐ Other (describe) |

Will this be a required or elective course in the curriculum? ☒ Required ☐ Elective

What is the probable enrollment when offered? Estimate: | 90

SFU

UNITS
Indicate number of units: | 3

Indicate no. of contact hours for: | 3 | Lecture | 0 | Seminar | 1 | Tutorial | 1 | Lab | 0 | Other – please explain

OTHER

FACULTY Which of your present CFL faculty have the expertise to offer this course?

Flavio Firmani, Gary Wang, Kevin Oldknow

WQB DESIGNATION (attach approval from Curriculum Office)

PREREQUISITE AND / OR COREQUISITE

MATH152 or equivalent, and MATH 232 or equivalent.

EQUIVALENT COURSES
Does this course replicate the content of a previously-approved course to such an extent that students should not receive credit for both courses?

MACM 316 - Numerical Analysis I

COURSE – LEVEL EDUCATIONAL GOALS (OPTIONAL)

FEES
Are there any proposed student fees associated with this course other than tuition fees?   ☐ YES   ☒ NO

RESOURCES

List any outstanding resource issues to be addressed prior to implementation: space, laboratory equipment, etc:

No outstanding resources are needed.

OTHER IMPLICATIONS

Final Exam required: ■ YES   ☐ NO

Criminal Record Check required: ☐ YES   ■ NO

OVERLAP CHECK

Checking for overlap is the responsiblity of the Associate Dean.

Each new course proposal must have confirmation of an overlap check completed prior to submission to the Faculty Curriculum Committee.

Name of Originator

Flavio Firmani

RATIONALE

More space if needed.

The new course is expected to provide engineering students with the knowledge of computational methods to solve engineering problems. Whereas the algorithmic development of the methods will be presented, the focus will be on implementation and application of such methods.
In addition, in order to comply with the requirements of Engineers Canada for the purpose of accreditation of the program, the course is designed such that to contribute to Mathematics and Engineering Science contents with the distribution of 75% and 25% respectively.