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MEMORANDUM

ATTENTION	Senate	DATE	August 7, 2016
FROM	Mark Lechner, Acting Chair Senate Committee on <i>Jolliffe</i> Undergraduate Studies	PAGES	1/1
RE:	Faculty of Applied Sciences (SCUS 16-29)		

For information:

Acting under delegated authority at its meeting of August 6, 2016 SCUS approved the following curriculum revisions effective Summer 2017.

1. School of Computing Science (SCUS 16-29a)

- (i) Prerequisite change for CMPT 373
- (ii) Requirement changes to the Computing Science Certificate program

2. School of Engineering Science (SCUS 16-29b)

- (i) Requirement changes to the Majors and Honours programs
 - Minimum course load policy
 - External transfer requirements
 - Removal of GERO 300 from the Biomedical Engineering Honours option

3. School of Mechatronic Systems Engineering (SCUS 16-29c)

- (i) Requirement changes to the Mechatronic System Engineering Major and Honours programs



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MEMORANDUM

ATTENTION	Senate Committee on Undergraduate Studies	DATE	July 6, 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 Computing Science
 - a. Course Prerequisite Changes
 - CMPT 373
 - b. Calendar Changes
 - Computing Certificate Program
- 2.) School of Engineering Science
 - a. Calendar Changes
 - Minimum Course Load Policy
 - External Transfer Requirements
 - Biomedical Engineering Honours Option - Removal of GERO 300
- 3.) School of Mechatronic Systems Engineering
 - a. Calendar Changes
 - External Transfer Requirements

Thank you,

Edward Park
Associate Dean

(EP/mt)



COURSE SUBJECT **CMPT** NUMBER **373** TITLE **Software Development Methods**

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
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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 213 and (CMPT 276 or 275)

SAMPLE

POL 223 ~~Canadian-American~~ Political Economy (3)
~~An introductory study of America's~~ Canada's political economy, stressing the interrelated nature of Canada's economic and political life. ~~The course~~ Focuses 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.~~
Students with credit for CNS 280 cannot take POL 223 for further credit.
~~Recommended Pre-requisite:~~ 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

See page 2.

EFFECTIVE TERM AND YEAR, FOR CHANGES

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

; 2017 **SUMMER**



RATIONALE

More space if needed.

CMPT 213 introduces students to a number of concepts previously taught primarily in CMPT 373, such as code construction, design patterns and refactoring. By introducing these topics in the second year, students are better prepared to learn these topics in greater depth in the third year. The majority of students taking CMPT 373 have already taken CMPT 213 as it is a requirement of the Software Systems program, and CMPT 373 is primarily taken by Software Systems students. Since CMPT 373 features a large, semester-long project, it is very useful to have all students be able to apply these concepts to the project from the start of the semester. Students who have not taken CMPT 213 are therefore at a disadvantage in CMPT 373 when working with their peers who have taken that course.

Revision to Computing Studies Certificate

John Edgar

July 2016

Description

Change Certificate to correct errors in previous calendar change.

Rationale

There were editing errors in the previous (Fall 2016) calendar change

Computing Studies

CERTIFICATE

This program provides both part-time and full-time students with an opportunity to understand the fundamentals of computers and programming without necessarily specializing in computing science. Current SFU Computing Science students in Major or Honours programs (or related joint programs) may not apply to this program.

Prerequisite Grade Requirement

Computing science course entry requires a grade of C- or better in each prerequisite course. A minimum 2.40 cumulative grade point average (CGPA) is required for 200, 300 and 400 division computing courses.

Program Requirements

~~Students complete at least 24 units.~~

A 2.00 grade point average is required on the CMPT courses that are used for graduation. Only courses completed at Simon Fraser University are used in this calculation.

Required Courses

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.

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 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 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 354 - Database Systems I (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)

* 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.

~~Elective Courses~~

~~Students complete a total of nine units, including two of~~

~~CMPT 110 - Programming in Visual Basic (3)
CMPT 165 - Introduction to the Internet and the World Wide Web (3)~~

~~and one three-unit 300 or 400-division CMPT course.~~

Co-operative Education and Work Experience

All computing science students are strongly encouraged to explore the opportunities that Work Integrated Learning (WIL) can offer them. Please contact an applied sciences co-op advisor during your first year of studies to ensure that you have all of the necessary courses and information to help plan for a successful co-op experience.

School of Engineering Science – Calendar Changes

Description

1. Change the existing 12 credit course load policy to the new Minimum Course Load Policy
2. Change the external transfer requirements
3. Remove GERO 300 from the program requirements for the Biomedical Engineering Honours program

Rationale

1. Our current 12 credit course load policy is not working. Hundreds of students apply for exemptions each semester causing high workload for staff, advisors and the faculty member
2. Currently, our internal transfer requirements require students to take courses in math, computing science and physics but we do not require this for external transfer students. We would like to bring our external transfer requirements more in line with the internal requirements.
3. GERO 300 used to be a preferred course for our Biomedical Engineering students. Over the years, the course has changed and the content no longer aligns as well with our Biomedical Engineering curriculum. We would like to remove this course.

1.) Changes to the 12 credit course load policy

Applies to all Majors and Honours options

Minimum Grade Point Averages

A minimum 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.

Minimum Course Load Policy

SFU ENSC students are expected to maintain a minimum course load of 12 credits per term. Students are permitted to take fewer credits in exceptional circumstances, provided that the average number of credits per enrolled term does not drop below 10 credits / term.

The minimum course load policy will be enforced once per year, after the completion of the Spring term. The Progress Rate will be calculated for each student as the number of credits divided by the number of enrolled terms (excluding coop). Students who at the time of evaluation have a Progress Rate below the required minimum of 10.00 credits/term, will be transferred to the BGS program.

Students who have completed 120 credits of the Engineering Science program are exempt from the minimum Progress Rate requirement, however they still have to meet the other requirements (i.e. minimum CGPA requirements, timely completion of coop, etc.).

Co-operative Education Work Experience

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Program Requirements

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~~Prior approval by the director of the school is required if the student plans a term with fewer than 12 course units.~~

2.) Changes to the external transfer requirements

The following changes should be updated in the listing for each ENSC Major and Honours option.

Admission Requirements

External Transfer from Another Post-Secondary Institution

~~Students transferring from other universities, regional colleges, or technical institutions must be eligible for University admission, and must submit a University application.~~

Admission is competitive. A minimum of 24 units of transferable coursework is required, including:

- at least one mathematics course chosen from: MATH 152, MATH 232 (or 240);
- at least one computing course chosen from: CMPT 128 (or 135; or (125 and 127)), and 225;

· at least one physics course chose from: PHYS 121 (or 141), PHYS 221, and PHYS 321

Please see www.sfu.ca/students/admission-requirements.html for further information.

...

3.) Revision to Engineering Science Biomedical Engineering Honours Option

Core Course Requirements

The following core courses are required by the Engineering Science Honours program in Biomedical Engineering and cannot be substituted for "equivalent" courses in other areas without prior approval by the School. 'Equivalent' courses taken without prior approval will not be applied to graduation requirements. Students should consult an academic advisor within their program for details on obtaining permission.

CHEM 121 - General Chemistry and Laboratory I (4)

CHEM 180 - The Chemistry of Life (3)

CMPT 128 - Introduction to Computing Science and Programming for Engineers (3)

ECON 103 - Principles of Microeconomics (4)

ENSC 100W - Engineering, Science and Society (3)

ENSC 105W - Process, Form, and Convention in Professional Genres (3)

ENSC 120 - Introduction to Electronics Laboratory Instruments Operation and Measurement Techniques (1)

ENSC 180 - Introduction to Engineering Analysis (3)

ENSC 204 - Graphical Communication for Engineering (1)

ENSC 220 - Electric Circuits I (4)

ENSC 225 - Microelectronics I (4)

ENSC 251 - Software Design and Analysis for Engineers (4)

ENSC 252 - Fundamentals of Digital Logic & Design (4)

ENSC 254 - Introduction to Computer Organization (4)

ENSC 280 - Engineering Measurement and Data Analysis (4)

ENSC 320 - Electric Circuits II (4)

ENSC 327 - Communication Systems (4)

ENSC 351 - Embedded and Real Time System Software (4)

ENSC 370 - Biomedical Engineering Directions (3)

ENSC 380 - Linear Systems (3)

ENSC 383 - Feedback Control Systems (4)

ENSC 405W - Project Documentation, User Interface Design, and Group Dynamics (3)

ENSC 406 - Engineering Ethics, Law, and Professional Practice (2)

ENSC 410 - The Business of Engineering (3) or ENSC 411 - The Business of Entrepreneurial Engineering (4)

ENSC 440 - Capstone Engineering Science Project (3)

ENSC 472 - Orthopaedic and Rehabilitation Engineering (4) or ENSC 476 - Biophotonics and Microscopy Techniques (4)

ENSC 474 - Digital/Medical Image Processing (4)

ENSC 475 - Biomedical Instrumentation (4)

ENSC 477 - Biomedical Image Acquisition (4)

ENSC 498 - Engineering Science Thesis Proposal (1)

ENSC 499 - Engineering Science Undergraduate Thesis (9)

~~GERO 300 - Introduction to Gerontology (3) *~~

BPK 201 - Biomechanics (3)

BPK 208 - Introduction to Physiological Systems (3)

BPK 308 - Experiments and Models in Systems Physiology (3)

MATH 151 - Calculus I (3) **

MATH 152 - Calculus II (3)

MATH 232 - Applied Linear Algebra (3)

MATH 251 - Calculus III (3)

MATH 254 - Vector and Complex Analysis for Applied Sciences (3)

MATH 310 - Introduction to Ordinary Differential Equations (3)

PHYS 120 - Mechanics and Modern Physics (3)

PHYS 121 - Optics, Electricity and Magnetism (3)

PHYS 321 - Intermediate Electricity and Magnetism (3)

~~* or any B-Soc course~~

** or MATH 150 Calculus I with Review if you do not meet the MATH 151 prerequisites

School of Mechatronic Systems Engineering– Calendar Change (External Transfer Requirements)

Description: Modification of the external transfer requirements for the School of Mechatronic Systems Engineering

Rationale: To harmonize external transfer requirements for our two engineering programs. The MSE program requires CMPT 130 rather than CMPT 128 so the language has been altered to reflect this difference.

These changes apply to the Mechatronic Systems Engineering Major and Honours programs and should be included as indicated below:

For calendar entry

External Transfer from Another Post-Secondary Institution

~~Students transferring from other universities, regional colleges, or technical institutions must be eligible for University admission, and must submit a University application. External transfer applicants may apply to begin study in any term and must have an admission average of 2.5.~~

~~Admission is competitive.~~ A minimum of 24 units of transferable coursework is required, including:

- at least one mathematics course chosen from Math 152 and 232 (or 240);
- at least one computing course chosen from CMPT 130, 135 (or 128; or (125 and 127)) and 225;
- at least one physics course chosen from PHYS 140 (or 120) and 141 (or 121)

Please see www.sfu.ca/students/admission-requirements.html for further information.

Internal Transfer from Another Simon Fraser University Program