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MEMORANDUM

ATTENTION	Senate	DATE	November 6, 2015
FROM	Gordon Myers, Chair Senate Committee on Undergraduate Studies	PAGES	1/1
RE:	Faculty of Applied Sciences (SCUS 15-37)		

For information:

Acting under delegated authority at its meeting of November 5, 2015 SCUS approved the following curriculum revisions effective Summer 2016.

1. School of Computing Science (SCUS 15-37a)

(i) Upper and Lower Division requirement changes to the Computing Science Minor program

2. School of Engineering Science (SCUS 15-37b)

(i) Requirement changes to the Computer and Electronics Design Minor program
(ii) Description change to ENSC 324



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MEMORANDUM

ATTENTION Senate Committee on Undergraduate Studies **DATE** October 14, 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 Minor program
- 2.) School of Engineering Science
 - a. Calendar Changes
 - ENSC Minor program
 - b. Course Description Changes
 - ENSC 324

Thank you,

A handwritten signature in black ink, appearing to read "Ed Park", written over a horizontal line.

Edward Park
Associate Dean

(EP/mt)

Revision to Computing Science Minor

John Edgar

October 2015

Description

Update Minor to remove unnecessary lower division requirements, and make it more accessible to a range of students.

Rationale

The current minor is out of date and has overly stringent requirements. Thus it is awarded less than 5 times a year. A Computing Science minor is popular in other schools, and more students could benefit from Computing Science knowledge.

The proposed syllabus gives students a solid basis in Computing Science 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~~

CMPT 225 - Data Structures and Programming (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.

Upper Division Requirements

~~Students complete 15 units of upper division CMPT or MACM courses, including at least nine CMPT units chosen from Computing Science Concentrations as shown below.~~

Students must complete 15 credits of upper division CMPT or MACM courses, 12 of which must be chosen from the following list. A grade point average of 2.00 in these upper division courses is required.

Table I - Computing Science Concentrations

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)
MACM 300 - Introduction to Formal Languages and Automata with Applications (3)

COMPUTING MATHEMATICS COURSES

MACM 316 - Numerical Analysis I (3)
MACM 401 - Introduction to Computer Algebra (3)
MACM 442 - Cryptography (3)
MATH 308 - Linear Optimization (3)
MATH 340 - Algebra II: Rings and Fields (3)
MATH 343 - Applied Discrete Mathematics (3)

Revision to Computer and Electronics Design Minor Program

Faculty of Applied Sciences Curriculum Committee

Marinko Sarunic and Margaret Crandell

September 2015

Description and Rationale

We propose an amendment to the Computer and Electronics Design Minor program that would remove the engineering capstone project sequence, ENSC 305W and 440W.

Admission Requirements

~~Entrance is open to all non-engineering science majors.~~

Entrance is open to all non-engineering science majors. Students apply after successfully completing the following five courses, with a minimum grade of C-. Enrolment is competitive and limited.

- MATH 232-3
- ENSC 100W-3 Engineering, Science, and Society
- ENSC 105W-3 Process, Form, and Convention in Professional Genres
- PHYS 120-3
- ~~CMPT 120~~ CMPT 125/127, ~~CMPT 130~~ CMPT 135 or CMPT 128

Minimum Grade Requirements

A minimum of C- is required to meet the prerequisite requirements in all courses.

Program Requirements

Students must meet all prerequisite requirements and complete all of:

ENSC 220 - Electric Circuits I (4)

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

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

~~ENSC 305W – Project Documentation and Group Dynamics (1)~~

ENSC 320 - Electric Circuits II (4)

ENSC 380 - Linear Systems (3)

~~ENSC 440 - Capstone Engineering Science Project (3)~~

and at least one of

ENSC 225 - Microelectronics I (4)

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

and at least three, and no more than five (students cannot count the same course twice) of

ENSC 225 - Microelectronics I (4)

ENSC 325 - Microelectronics II (4)

ENSC 327 - Communication Systems (4)

ENSC 350 - Digital Systems Design (4)

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

ENSC 424 - Multimedia Communications Engineering (4)

ENSC 425 - Electronic System Design (4)

ENSC 427 - Communication Networks (4)

ENSC 429 - Digital Signal Processing (4)

ENSC 450 - VLSI Systems Design (4)

ENSC 489 - Computer Aided Design and Manufacturing (4)

ENSC 495 - Introduction to Microelectronic Fabrication (4)

Grade Point Average Requirement

The engineering science graduation grade point average (GPA) in the above courses must be 2.0 or better. A CGPA of 2.0 is also required. If either GPA drops below 2.0 the student ~~may~~will be required to withdraw.

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.

COURSE SUBJECT NUMBER TITLE

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	X	Description	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.

The essential physics of silicon semiconductor devices that form the heart of integrated circuits today are covered. An introduction to semiconductor device physics upon which device models are based leading to the development of the drift-diffusion equations. The static and dynamic behavior of PN junction diodes, bipolar junction transistors, and field effect transistors will be covered along with the application of the developed device models to integrated circuit design. Students ~~who have taken~~ with credit for ENSC 224 or PHYS 365 cannot take ~~this course~~ ENSC 324 for further credit.

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

Students with credit for ENSC 224 may not take PHYS 365 for further credit. Since ENSC 324 replaced ENSC 224 in the Engineering curriculum, the exclusion clause for PHYS 365 needs to be included in the ENSC 324 description.

EFFECTIVE TERM AND YEAR, FOR CHANGES

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

Summer 2016