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MEMORANDUM

ATTENTION	Senate	**DATE**	June 5, 2015
FROM	Gordon Myers, Chair Senate Committee on Undergraduate Studies	**PAGES**	1/1
RE:	Faculty of Applied Sciences (SCUS 15-23)		

For information:

Acting under delegated authority at its meeting of June 4, 2015 SCUS approved the following curriculum revisions effective Spring 2016.

1. School of Computing Science (SCUS 15-23a)

   (i) Description change for CMPT 373

2. School of Mechatronic Systems Engineering (SCUS 15-23b)

   (i) Credit and title change for MSE 490, 491

3. School of Engineering Science (SCUS 15-23c)

   (i) Description change for ENSC 204
   (ii) Prerequisite change for ENSC 220
   (iii) Requirement changes to the Engineering Science Honours, Biomedical Engineering option

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MEMORANDUM

ATTENTION	Senate Committee on Undergraduate Studies	**DATE**	May 19, 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. Course Changes
      - CMPT 373

2.) School of Mechatronic Systems Engineering
   a. Course Changes
      - MSE 490
      - MSE 491

3.) School of Engineering Science
   a. Course Changes
      - ENSC 204
      - ENSC 220

   b. Calendar Changes
      - Biomedical Engineering Option

Thank you,

Edward Park
Associate Dean

(EP/mt)

SFU SENATE COMMITTEE ON UNDERGRADUATE STUDIES

EXISTING COURSE CHANGE FORM

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	x	Description		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.

Survey of modern software development methodology. Several software development process models will be examined, as will the general principles behind such models. Provides experience with different programming paradigms and their advantages and disadvantages during software development. ~~Students with credit for CMPT 475 may not complete this course 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

Recent changes to CMPT 475 (passed by Senate, February 2015) have removed the necessity of this restriction since the two courses no longer cover similar material.

EFFECTIVE TERM AND YEAR, FOR CHANGES

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

Spring 2016

SFU SENATE COMMITTEE ON UNDERGRADUATE STUDIES

EXISTING COURSE CHANGE FORM

COURSE SUBJECT	MSE	NUMBER	490	TITLE	Special Topics in Mechatronic Systems Engineering

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	x	Credit	x	Title		Description		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.

MSE 490 – Special Topic in Mechatronic Systems Engineering (43)

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

Last year MSE changed all technical elective courses from 4 credits to 3 credits. Special topic courses are designed to accommodate new elective topics that are not currently covered in our course offerings. The number of credits of these special topic courses should be the same as other technical elective courses.

EFFECTIVE TERM AND YEAR, FOR CHANGES

SPRING 2016

COURSE SUBJECT	MSE	NUMBER	491	TITLE	Special Topics in Mechatronic Systems Engineering

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	x	Credit	x	Title		Description		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.

MSE 491 – Special Topic in Mechatronic Systems Engineering (43)

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

Last year MSE changed all technical elective courses from 4 credits to 3 credits. Special topic courses are designed to accommodate new elective topics that are not currently covered in our course offerings. The number of credits of these special topic courses should be the same as other technical elective courses.

EFFECTIVE TERM AND YEAR, FOR CHANGES SPRING 2016

SFU SENATE COMMITTEE ON UNDERGRADUATE STUDIES

EXISTING COURSE CHANGE FORM

COURSE SUBJECT	NUMBER	TITLE
ENSC	204	Graphical Communication for Engineering

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		Prerequisite		Deletion
						X					

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.

An introduction to the use of graphical communication in engineering. Objectives are to improve the students' literacy in the use of graphics to communicate engineering information, and their ability to visualize and to think in three dimensions. Specific application areas discussed include 2D and 3D geometry in mechanical drawing, electronics-related drawings, block diagrams, and flow charts. The use of CAD tools will be discussed, and demonstrations of some tools will be provided. ~~Equivalent Courses: ENSC103.~~ Students with credit for ENSC103, ENSC 104, or MSE 100 cannot take ENSC 204 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

ENSC 104 and MSE 100 meet and exceed the material covered in ENSC 204 and students should not be able to take both courses for credit. ENSC 104/MSE 100 are the same course (where ENSC 104 was the old course offering number).

EFFECTIVE TERM AND YEAR, FOR CHANGES

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

Spring 2016

SFU SENATE COMMITTEE ON UNDERGRADUATE STUDIES

EXISTING COURSE CHANGE FORM

COURSE SUBJECT: ENSC | NUMBER: 220 | TITLE: Electric Circuits I

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.

Prerequisite: (PHYS 121 or PHYS 126 or PHYS 141), ~~and (ENSC 120 or PHYS 131),~~ ENSC 120, ~~and~~ MATH 232, and MATH 310. MATH 232 and/or MATH 310 may be taken concurrently.

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

ENSC 120 is a required course in the new curriculum and PHYS 131 will no longer be accepted as a prerequisite for ENSC 220 in place of ENSC 120. PHYS 131 is not equivalent to ENSC 120 and does not prepare the students adequately for ENSC 220. Related changed have already been passed as part of the curriculum revision.

EFFECTIVE TERM AND YEAR, FOR CHANGES

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

Spring 2016

Engineering Science Curriculum Revision Correction

Faculty of Applied Sciences Curriculum Committee

Marinko Sarunic and Ed Park
May 2015

The School of Engineering Science needs to make a revision to the fourth year curriculum for the Biomedical Engineering option that was omitted in the curriculum revisions passed in S.14-149.

1. Revisions to each of the ENSC options as shown below.

a) Changes to Engineering Science Honours, Biomedical Engineering Option

Changes to Engineering Science Honours, Biomedical Engineering Option

The changes to the engineering science honours, biomedical engineering option course sequence reflect the following updates. 1) ENSC 477 (Biomedical Image Acquisition) is being added as a required course. This should have been added in the Year 3 and 4 curriculum revisions passed in S.14-149 but was omitted in error.

Current

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 Technology and Society (3)
- ENSC 105W Process, Form and Convention in Professional Genres (3)
- ENSC 120 Introduction to Electronics Laboratory Instruments (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 & Analysis for Engineers (4)
- ENSC 252 Introduction to Digital Logic (4)
- ENSC 254 Introduction to Computer Organization (4)
- ENSC 280 Engineering Measurement and

Proposed

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 Technology and Society (3)
- ENSC 105W Process, Form and Convention in Professional Genres (3)
- ENSC 120 Introduction to Electronics Laboratory Instruments (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 & Analysis for Engineers (4)
- ENSC 252 Introduction to Digital Logic (4)
- ENSC 254 Introduction to Computer Organization (4)
- ENSC 280 Engineering Measurement and

Data Analysis (3)
- 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 (4)
- ENSC 474 Digital/Medical Image Processing (4)
- ENSC 475 Biomedical Instrumentation (4)
- ENSC 498 Engineering Science Thesis Proposal (3)
- 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

Data Analysis (3)
- 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 477 Biomedical Image Acquisition**
- ENSC 498 Engineering Science Thesis Proposal (3)
- 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 MATH 150 Calculus I with Review if you do not meet the MATH 151 prerequisites

*or any B-Soc course

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