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MEMORANDUM

ATTENTION	Senate	**DATE**	October 3, 2014
FROM	Gordon Myers, Chair Senate Committee on Undergraduate Studies	**PAGES**	1/1
RE:	Faculty of Applied Sciences (SCUS 14-37)		

For information:

Acting under delegated authority at its meeting of October 2, 2014 SCUS approved the following curriculum revisions.

1. School of Engineering Science

(i) New Course Proposal: ENSC 405W-3, Project Documentation, User Interface Design, and Group Dynamics
(ii) Revision to external transfer language
(iii) Prerequisite change to ENSC 180, 225, 320, 425, 429, 450
(iv) Changes to credit, description and prerequisite for ENSC 440
(v) Changes to title, description and prerequisite for ENSC 472

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MEMORANDUM

ATTENTION	Senate Committee on Undergraduate Studies	**DATE**	Sept 22, 2014
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 Engineering Science
   a. New Course Proposals
      i. ENSC 405W IP GRADES

   b. Course Changes
      i. ENSC 180
      ii. ENSC 225
      iii. ENSC 320
      iv. ENSC 425
      v. ENSC 429
      vi. ENSC 440
      vii. ENSC 450
      viii. ENSC 472

   c. Calendar Changes
      i. Revisions to external transfer language
      ii. Revisions to individual ENSC options:
         - Engineering Science Major, Computer Engineering Option
         - Engineering Science Major, Electronics Engineering Option
         - Engineering Science Major, Systems Option
         - Engineering Science Honours, Biomedical Engineering Option
         - Engineering Science Honours, Computer Engineering Option
         - Engineering Science Honours, Electronics Engineering Option
         - Engineering Science Honours, Engineering Physics Option
         - Engineering Science Honours, Systems Option

Thank you,

Edward Park
Associate Dean

(EP/mt)

Engineering Science Curriculum Revision: Year 3 and 4

Faculty of Applied Sciences Curriculum Committee

Lesley Shannon and Ed Park
September 2014

The School of Engineering Science proposes a new third and fourth year curriculum for all the engineering science options. This will complete the curriculum revision of our program. It includes the removal of some previously required courses (e.g. ENSC 305W, ENSC 330), the addition of some new course sequences (e.g. ENSC 405W-ENSC 440) and the renumbering of existing courses to correctly reflect their course level (ENSC 201, 224, 230 and 281). Finally, each option has now defined a unique set of mandatory core courses to clearly differentiate them and we have indicated that any course substitutions from the specified course requirements for each option must be pre-approved to meet graduation requirements.

1. New course proposals:
   a) ENSC 405W-3 Project Documentation, User Interface Design, and Group Dynamics
2. The new course proposal and outline are attached, along with the WQB memo.
3. Course prerequisite changes: ENSC 180, ENSC 224/324, ENSC 225, ENSC 230/386, ENSC 281/385, ENSC 320, ENSC 327, ENSC 328, ENSC 372/475, ENSC 374/477, ENSC 411, ENSC 425, ENSC 429, ENSC 440, ENSC 472, ENSC 474,
4. Course title change: ENSC 472
5. Course credit change: ENSC 440
6. Course Description Change: ENSC 201/410, ENSC 440, ENSC 472
7. Course Re-Numbering: ENSC 201/410, ENSC 224/324, ENSC 230/386, ENSC 281/385, ENSC 372/475, ENSC 374/477,
8. Revisions to all ENSC option calendars
9. Revisions to each of the ENSC options as shown below.

a) Changes to the Engineering Science Major, Computer Engineering Option
b) Changes to the Engineering Science Major, Electronics Engineering Option
c) Changes to the Engineering Science Major, Systems Option
d) Changes to Engineering Science Honours, Biomedical Engineering Option
e) Changes to Engineering Science Honours, Computer Engineering Option
f) Changes to Engineering Science Honours, Electronics Engineering Option
g) Changes to Engineering Science Honours, Engineering Physics Option
h) Changes to Engineering Science Honours, Systems Option

COURSE SUBJECT/NUMBER ENSC 405W

COURSE TITLE

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

Project Documentation, User Interface Design, and Group Dynamics

AND

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

Project Docs, UI, & Teamwork

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

COURSE DESCRIPTION (FOR CALENDAR). 50-60 WORDS MAXIMUM. ATTACH A COURSE OUTLINE TO THIS PROPOSAL.

This is the first course in a group-based, two-course capstone sequence: ENSC 405W, ENSC 440. Topics include group writing processes, project documentation and engineering design, group dynamics, engineering standards, project management, dispute resolution, intellectual property, entreprenuership, and user interface design. These groups will be maintained for the completion of the capstone project in ENSC 440. Students who have taken (ENSC 304 and ENSC 305W) may not take ENSC 405W for credit. Engineering Science students cannot take MSE 401W or MSE 405W for credit. Students must take ENSC 440 in the term directly following successful completion of ENSC 405W. Grades awarded in ENSC 405W are conditional on the successful completion of ENSC 440 in the subsequent term.

REPEAT FOR CREDIT ◉ NO ○ YES How many times? 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 No Library resources required.

RATIONALE FOR INTRODUCTION OF THIS COURSE

***This course is replacing ENSC 304 and ENSC 305W; ENSC 405W will now become part of a new 2 course sequence. ([ENSC 304: The user is often overlooked in the engineer's quest for a functional and efficient design. This course examines the factors that make designs more or less usable and how to integrate usability constraints and testing procedures into the design process])

SCHEDULING AND ENROLLMENT INFORMATION

Indicate effective **term and year** course would first be offered and planned **frequency** of offering thereafter:

Spring 2017 (Needs to be included as of Fall 2015 calendar for program)
Annual.

Will this be a required or elective course in the curriculum? ◉ Required ○ Elective

What is the probable enrollment when offered? Estimate: 120

CREDITS
Indicate number of credits (units): 3

Indicate number of hours for:	Lecture	Seminar	Tutorial	Lab	Other
	2			2	

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

Steve Whitmore, Mike Sjoerdsma

WQB DESIGNATION (attach approval from Curriculum Office)

W Designation is pending.

PREREQUISITE
Does this course replicate the content of a previously-approved course to such an extent that students should not receive credit for both courses? If so, this should be **noted in the prerequisite**.

Prerequisites: ENSC 105W, ENSC 204, ENSC 351, a minimum of 100 units , and 2 completed co-op terms.

COREQUISITE

None

STUDENT LEARNING OUTCOMES
Upon satisfactory completion of the course students will be able to:

1. Demonstrate evidence of abilty to competently draft and revise a variety of engineering documents (SFU W Certification):
- Project proposal
- Functional specifications
- Design specifications
- Progress report
- Engineering Journal
- Poster Presentation

2. Demonstrate the following CEAB (Canadian Engineering Accreditation Board) indicators of learning outcomes:
- Effectively represents engineering issues and the engineering profession to the broader community.
- Recognizes the responsibilities of an engineer to identify and address legal issues of occupational safety and intellectual property as well as differentiating moral, legal, and social dimensions of responsibility.
- Participates actively in meetings, generating ideas and identifying concerns with potential solutions.
- Integrates standards, codes of practice, and legal and regulatory factors into decision-making process as appropriate.
- Incorporates sustainability considerations (societal, ecological, and economic) in decision-making, recognizing the potential impact, both short-term and long-term.
- Incorporates cost considerations throughout the design and execution of a project and manages the project budget; evaluates the life-cycle economic and financial costs and benefits of the project.
- Evaluates whether a project is economically attractive using the tools of economic analysis; assesses the scope and dimensions of the project or task as a starting point for estimating costs and scale of effort required.
- Conducts risk analysis of projects to comprehend, assess, and quantify the consequences of uncertainties in project parameters; and devises strategies for their management.
- Plans and schedules projects to bring them in on budget and time using a work breakdown and resource plan.

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:

None.

OTHER IMPLICATIONS

Articulation agreement reviewed?	○ YES	○ NO	◉ Not applicable
Exam required:	○ YES	◉ NO	
Criminal Record Check required:	○ YES	◉ NO	

APPROVALS: APPROVAL IS SIGNIFIED BY DATE AND APPROPRIATE SIGNATURE.

1 **Departmental approval indicates that the Department or School has approved the content of the course, and has consulted with other Departments/Schools/Faculties regarding proposed course content and overlap issues.**

_____

Chair, Department/School **Date**

_____

Chair, Faculty Curriculum Committee **Date**

2 **Faculty approval indicates that all the necessary course content and overlap concerns have been resolved, and that the Faculty/School/Department commits to providing the required Library funds.**

_____

Dean or designate **Date**

LIST which other Departments, Schools and Faculties have been consulted regarding the proposed course content, including overlap issues. Attach documentary evidence of responses.

Not Applicable.

Other Faculties' approval indicates that the Dean(s) or Designate of other Faculties AFFECTED by the proposed new course support(s) the approval of the new course:

_____ Date _____

_____ Date _____

3 **SCUS approval indicates that the course has been approved for implementation subject, where appropriate, to financial issues being addressed.**

COURSE APPROVED BY SCUS (Chair of SCUS):

_____ Date _____

Changes to all Engineering Science Majors and Honours Programs

The following text is being added to each of the program's options to correctly reflect the external transfer process. We particularly wish to remove any mention of a fixed transfer GPA as our external transfer GPA often needs to be raised due to our limited capacity to take on transfer students and the variable quality of the applicant pool.

Current	Proposed
External Transfer from Another Post-Secondary Institution	**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.***~~	Students transferring from other universities, regional colleges, or technical institutions must be eligible for University admission, and must submit a University application. ***Please see www.sfu.ca/students/admission-requirements.html for further information.***

This change has been made to the second paragraph of *each* option Major and Honours Program Requirements section. This change is required to correctly reflect that our core course requirements comprise both technical and non-technical courses. Without the word "also," the sentence reads as if only non-technical courses are required.

Program Requirements	Program Requirements
…	…
This program's core course requirements consist of non-technical courses which broaden education and develop awareness of social, economic and managerial factors affecting engineering and scientific work.	This program's core course requirements ***also*** consist of non-technical courses which broaden education and develop awareness of social, economic and managerial factors affecting engineering and scientific work.

SFU

SENATE COMMITTEE ON UNDERGRADUATE STUDIES

COURSE CHANGE/DELETION

EXISTING COURSE, CHANGES RECOMMENDED

Please check appropriate revision(s):

☐ Course number ☐ Credit ☐ Title ☐ Description ■ Prerequisite ☐ Course deletion ☐ Learning Outcomes

Indicate number of hours for: Lecture _____ Seminar _____ Tutorial _____ Lab _____

FROM
Course Subject/Number ENSC 180

TO
Course Subject/Number ENSC 180

Credits _____

Credits _____

TITLE

(1) LONG title for calendar and schedule, no more than 100 characters including spaces and punctuation.

FROM:

TO:

(2) SHORT title for enrollment and transcript, no more than 30 characters including spaces and punctuation.

FROM:

TO:

DESCRIPTION
FROM:

DESCRIPTION
TO:

PREREQUISITE

Does this course replicate the content of a previously approved course to such an extent that students should not receive credit for both courses? If so, this should be **noted in the prerequisite**.

FROM: Prerequisite: MATH 151 or MATH 150. Corequisite: MATH 152 and MATH 232.

PREREQUISITE

TO: Prerequisite: (CMPT 128, CMPT 120, or CMPT 130) and (MATH 151 or MATH 150). Corequisite: MATH 152 and MATH 232.

LEARNING OUTCOMES

RATIONALE

We found that students who had struggled or had not yet taken a programming course were not successful in ENSC 180. As such, we are adding a basic programming course to the pre-requisite to better prepare our students for this course.

Effective term and year Fall 2015

SFU

SENATE COMMITTEE ON UNDERGRADUATE STUDIES

COURSE CHANGE/DELETION

EXISTING COURSE, CHANGES RECOMMENDED

Please check appropriate revision(s):

☐ Course number ☐ Credit ☐ Title ☐ Description ■ Prerequisite ☐ Course deletion ☐ Learning Outcomes

Indicate number of hours for: Lecture _____ Seminar _____ Tutorial _____ Lab _____

FROM
Course Subject/Number ENSC 225

Credits _____

TO
Course Subject/Number _____

Credits _____

TITLE

(1) LONG title for calendar and schedule, no more than 100 characters including spaces and punctuation.

FROM:

TO:

(2) SHORT title for enrollment and transcript, no more than 30 characters including spaces and punctuation.

FROM:

TO:

DESCRIPTION
FROM:

DESCRIPTION
TO:

PREREQUISITE

Does this course replicate the content of a previously approved course to such an extent that students should not receive credit for both courses? If so, this should be **noted in the prerequisite**.

FROM: ENSC 150 or CMPT 150, ENSC 220, MATH 232, and MATH 310. Quantitative.

PREREQUISITE

TO: (ENSC 150 or CMPT 150), (ENSC 220 or MSE 250), MATH 232, and MATH 310. Quantitative.

LEARNING OUTCOMES

RATIONALE

MSE equivalents are being added to the list of acceptable prerequisites.

Effective term and year Fall 2015

SFU

SENATE COMMITTEE ON UNDERGRADUATE STUDIES

COURSE CHANGE/DELETION

EXISTING COURSE, CHANGES RECOMMENDED

Please check appropriate revision(s):

☐ Course number ☐ Credit ☐ Title ☐ Description ■ Prerequisite ☐ Course deletion ☐ Learning Outcomes

Indicate number of hours for: Lecture _____ Seminar _____ Tutorial _____ Lab _____

FROM
Course Subject/Number ENSC 320

Credits _____

TO
Course Subject/Number _____

Credits _____

TITLE

(1) LONG title for calendar and schedule, no more than 100 characters including spaces and punctuation.

FROM:

TO:

(2) SHORT title for enrollment and transcript, no more than 30 characters including spaces and punctuation.

FROM:

TO:

DESCRIPTION
FROM:

DESCRIPTION
TO:

PREREQUISITE

Does this course replicate the content of a previously approved course to such an extent that students should not receive credit for both courses? If so, this should be **noted in the prerequisite**.

FROM: ENSC 220, MATH 232, and MATH 310.

PREREQUISITE

TO: (ENSC 220 or MSE 250), MATH 232, and MATH 310.

LEARNING OUTCOMES

RATIONALE

MSE equivalents are being added to the list of acceptable prerequisites.

Effective term and year Fall 2015

SFU

SENATE COMMITTEE ON UNDERGRADUATE STUDIES

COURSE CHANGE/DELETION

EXISTING COURSE, CHANGES RECOMMENDED

Please check appropriate revision(s):

☐ Course number ☐ Credit ☐ Title ☐ Description ■ Prerequisite ☐ Course deletion ☐ Learning Outcomes

Indicate number of hours for: Lecture _____ Seminar _____ Tutorial _____ Lab _____

FROM
Course Subject/Number ENSC 425

Credits _____

TO
Course Subject/Number _____

Credits _____

TITLE

(1) LONG title for calendar and schedule, no more than 100 characters including spaces and punctuation.

FROM:

TO:

(2) SHORT title for enrollment and transcript, no more than 30 characters including spaces and punctuation.

FROM:

TO:

DESCRIPTION
FROM:

DESCRIPTION
TO:

PREREQUISITE

Does this course replicate the content of a previously approved course to such an extent that students should not receive credit for both courses? If so, this should be **noted in the prerequisite**.

FROM: ENSC 320, 325 and 380 and a minimum of 80 units.

PREREQUISITE

TO: ENSC 320, ENSC 325, (ENSC 380 or MSE 280), and a minimum of 80 units.

LEARNING OUTCOMES

RATIONALE

MSE equivalents are being added to the list of acceptable prerequisites.

Effective term and year Fall 2015

SFU

SENATE COMMITTEE ON UNDERGRADUATE STUDIES

COURSE CHANGE/DELETION

EXISTING COURSE, CHANGES RECOMMENDED

Please check appropriate revision(s):

☐ Course number ☐ Credit ☐ Title ☐ Description ■ Prerequisite ☐ Course deletion ☐ Learning Outcomes

Indicate number of hours for: Lecture _____ Seminar _____ Tutorial _____ Lab _____

FROM
Course Subject/Number ENSC 429

TO
Course Subject/Number _____

Credits _____

Credits _____

TITLE

(1) LONG title for calendar and schedule, no more than 100 characters including spaces and punctuation.

FROM:

TO:

(2) SHORT title for enrollment and transcript, no more than 30 characters including spaces and punctuation.

FROM:

TO:

DESCRIPTION
FROM:

DESCRIPTION
TO:

PREREQUISITE

Does this course replicate the content of a previously approved course to such an extent that students should not receive credit for both courses? If so, this should be **noted in the prerequisite**.

FROM: (ENSC 327 or 328), ENSC 380, and a minimum of 80 units.

PREREQUISITE

TO: (ENSC 327 or ENSC 328), (ENSC 380 or MSE 280), and a minimum of 80 units.

LEARNING OUTCOMES

RATIONALE

MSE equivalents are being added to the list of acceptable prerequisites.

Effective term and year Fall 2015

SFU

SENATE COMMITTEE ON UNDERGRADUATE STUDIES

COURSE CHANGE/DELETION

EXISTING COURSE, CHANGES RECOMMENDED

Please check appropriate revision(s):

☐ Course number ■ Credit ☐ Title ■ Description ■ Prerequisite ☐ Course deletion ☐ Learning Outcomes

Indicate number of hours for: Lecture _____ Seminar _____ Tutorial _____ Lab _____

FROM
Course Subject/Number ENSC 440

Credits 4

TO
Course Subject/Number ENSC 440

Credits 3

TITLE

(1) LONG title for calendar and schedule, no more than 100 characters including spaces and punctuation.

FROM:
Capstone Engineering Science

TO:
Capstone Engineering Science

(2) SHORT title for enrollment and transcript, no more than 30 characters including spaces and punctuation.

FROM:

TO:

DESCRIPTION

FROM:

This capstone design course is based around a group project that consists of researching, designing, building, and testing the hardware implementation of a working system. The course also includes material on how to design for safety, engineering standards, and human factors. Students with credit for ENSC 340, 370, or 440 may not take this course for further credit.

DESCRIPTION

TO:

This is the second course in the group-based, two-course capstone sequence: ENSC 405W, ENSC 440. The capstone design course is based around a group project that consists of researching, designing, building, and testing the hardware implementation of a working system. The course also includes material on how to design for safety and a shop training workshop. In order to obtain credit, students must successfully complete both courses. Students with credit for ENSC 440W, ENSC 442 or MSE 411W may not take this course for further credit.

PREREQUISITE

Does this course replicate the content of a previously approved course to such an extent that students should not receive credit for both courses? If so, this should be **noted in the prerequisite**.

FROM: At least 100 units. Corequisite: ENSC 305

PREREQUISITE

TO: ENSC 405W and at least 100 units. Students will be automatically enrolled in ENSC 440 in the term immediately following successful completion of ENSC 405W.

LEARNING OUTCOMES

RATIONALE

The number of credit hours is reduced by one to reflect that some of the material previously associated with ENSC 440 is now shifted from 440 into the new ENSC 405W. Furthermore ENSC 405W will become the first part in a mandatory new 2-course sequence. So ENSC 305 is being removed as a corequisite and made a prerequisite under its new course number (ENSC 405W). Finally, ENSC 340 no longer exists (cannot be taken for further credit), ENSC 370 has been removed and reassigned as a completely new course (therefore may be taken for further credit), and only the MSE capstone courses (ENSC 442 and MSE 411W) and ENSC 440W need to be excluded for further credit.

Effective term and year: Spring 2017 (must be in calendar fall 2015)

SFU

SENATE COMMITTEE ON UNDERGRADUATE STUDIES

COURSE CHANGE/DELETION

EXISTING COURSE, CHANGES RECOMMENDED

Please check appropriate revision(s):

☐ Course number ☐ Credit ☐ Title ☐ Description ■ Prerequisite ☐ Course deletion ☐ Learning Outcomes

Indicate number of hours for: Lecture _____ Seminar_____ Tutorial _____ Lab _____

FROM
Course Subject/Number ENSC 450

TO
Course Subject/Number _____

Credits _____

Credits_____

TITLE

(1) LONG title for calendar and schedule, no more than 100 characters including spaces and punctuation.

FROM:

TO:

(2) SHORT title for enrollment and transcript, no more than 30 characters including spaces and punctuation.

FROM:

TO:

DESCRIPTION
FROM:

DESCRIPTION
TO:

PREREQUISITE

Does this course replicate the content of a previously approved course to such an extent that students should not receive credit for both courses? If so, this should be **noted in the prerequisite**.

FROM: ENSC 225 and ENSC 350, and a minimum of 80 units.

PREREQUISITE

TO: (ENSC 225 or ENSC 226 or MSE 251) and ENSC 350, and a minimum of 80 units.

LEARNING OUTCOMES

RATIONALE

MSE equivalents (ENSC 226 and MSE 251) are being added to the list of acceptable prerequisites

Effective term and year

Summer 2015

SFU

SENATE COMMITTEE ON UNDERGRADUATE STUDIES

COURSE CHANGE/DELETION

EXISTING COURSE, CHANGES RECOMMENDED

Please check appropriate revision(s):

☐ Course number ☐ Credit ■ Title ■ Description ■ Prerequisite ☐ Course deletion ☐ Learning Outcomes

Indicate number of hours for: Lecture 3 Seminar 0 Tutorial 0 Lab 1

FROM
Course Subject/Number ENSC 472
Credits 4

TO
Course Subject/Number ENSC 472
Credits 4

TITLE

(1) LONG title for calendar and schedule, no more than 100 characters including spaces and punctuation.

FROM:
Rehabilitation Engineering and Assistive Devices

TO:
Orthopaedic and Rehabilitation Engineering

(2) SHORT title for enrollment and transcript, no more than 30 characters including spaces and punctuation.

FROM:
Rehab Eng Assist Dev

TO:
Ortho and Rehab Engineering

DESCRIPTION

FROM:

Provides students with exposure to essential topics in rehabilitation engineering and the design of assistive devices. The course is organized into weekly modules, each of which includes a basic patho-physiology component, an introduction to related rehabilitation engineering technology, and a laboratory/project component. All modules will provide students with (a) an understanding of the scientific basis for a specific area of rehabilitation engineering, (b) experience in the application of standard medical techniques for disability assessment, (c) exposure to biomechanical and physiological measurement techniques, (d) experience in the design (including ISO standards), construction, and evaluation of technological solutions to enhance mobility, communication, sensory function, cognition, and independence in daily activities.

TO:

Provides students with an advanced understanding, from a biomedical engineering perspective, of how human musculoskeletal tissues (bone, cartilage, muscle, and tendon) are structured to meet their functional demands. Reviews strength of materials engineering theory and techniques for measuring and describing the mechanical properties of biological tissues, and the tissue stresses and strains occuring during daily activities. Examines how musculoskeletal function (and ability to perform essential activities) is compormised by specific disease states. (e.g., arthritis, osteoporosis, sarcopenia). Examines the engineering basis for the design and analysis of prevention strategies, and rehabilitative and surgical treatments for various musculoskeletal diseases and injuries. Builds skills in literature review, analytic problem solving and engineering design through problem sets and final term project.

PREREQUISITE

Does this course replicate the content of a previously approved course to such an extent that students should not receive credit for both courses? If so, this should be **noted in the prerequisite**.

FROM: ENSC 372, BPK 201, 208, 448 and a minimum of 80 units

TO: (ENSC 380 or MSE 280) and a minimum of 80 units.

LEARNING OUTCOMES

RATIONALE

These changes will expand the focus on ENSC 472 to engineering aspects of orthopaedics and rehabilitation medicine, including the design of rehabilitative, surgical and pharaceutical treatments for the prevention, treatment and rehabilitation of disease and injury. The revised design includes a more in-depth consideration of the relevant physiology and engineering theory (strength of materials) important to the design of joint prosthesis, fracture fixation devices, and assistive devices. Adding to existing sections on bone, tendon, and ligament, new modules are added on arthritis, concussion, and muscle. In each section, students obtain experience through in-class examples and problem sets in designing devices to prevent, treat or rehabilitate musculoskeletal disease or injury. These changes will provide students with an improved ability to assume leadership roles in orthopaedic and rehabilitation engineering.

MSE equivalents are being added to the list of acceptable prerequisites.

Effective term and year: Fall 2015