



OFFICE OF THE ASSOCIATE VICE-PRESIDENT, ACADEMIC AND ASSOCIATE PROVOST

8888 University Drive,  
Burnaby, BC  
Canada V5A 1S6

TEL: 778.782.4636  
FAX: 778.782.5876

avpcio@sfu.ca  
www.sfu.ca/vpacademic

MEMORANDUM

---

ATTENTION Senate  
FROM Bill Krane, Chair  
Senate Committee on Undergraduate Studies  
RE: Faculty of Applied Sciences (SCUS 11-44)

DATE October 14, 2011  
PAGES 1/1

---

**For information:**

Acting under delegated authority at its meeting of October 13, 2011, SCUS approved the following curriculum revisions effective Summer 2012:

- 1. School of Engineering Science (SCUS 11-44a)
  - (a) New Course Proposal: ENSC 411-4, The Business of Entrepreneurial Engineering
  - (b) Changes to prerequisite and/or/ title and/or description for ENSC 201, 283, 384 and 476

Senators wishing to consult a more detailed report of curriculum revisions may do so by going to Docushare: <https://docushare.sfu.ca/dsweb/View/Collection-12682>  
If you are unable to access the information, please call [778-782-3168](tel:778-782-3168) or email [shelley\\_gair@sfu.ca](mailto:shelley_gair@sfu.ca).



## FACULTY OF APPLIED SCIENCES

## MEMO

Office of the Dean

ASB-9861  
Applied Science BldgTel: 778-782-4724  
Fax: 778-782-5802[www.fas.sfu.ca](http://www.fas.sfu.ca)**ATTENTION Bill Krane, Chair SCUS**FROM Rob Cameron, Associate Dean,  
Faculty of Applied SciencesRE Faculty of Applied Sciences  
Undergraduate Curriculum Changes

DATE September 19, 2011

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. Engineering Science:

New Course Proposal: ENSC 411 Business of Entrepreneurial Engineering (includes revision to current ENSC 201)

Course Change: ENSC 201 – The Business of Engineering

Course Change: ENSC 283 Introduction to Fluid Mechanics

Course Change: ENSC 384 Mechatronics Design II

Course Change: ENSC 476 Biophotonics and Microscopy Techniques

**SIMON FRASER UNIVERSITY  
Senate Committee for Undergraduate Studies  
NEW COURSE PROPOSAL**

Course Number: **ENSC 411-4**

Course Title: **The Business of Entrepreneurial Engineering**

Long - for calendar/schedule no more than 100 characters including spaces/punctuation

**AND**

Short - for registration/transcript no more than 30 characters including spaces/punctuation

**Entrepreneurial Engineering**

State number of hours for Lect ( **3** ) Sem ( ) Tut ( **1** ) Lab ( )

Course Description (for Calendar). Attach a course outline to this proposal.

**This course combines the engineering economics covered in ENSC 201 with a series of guest lectures on entrepreneurship and the writing of a business plan in collaboration with students from the Faculty of Business**

**Prerequisite: Students must have completed 90 credits and have a GPA above 3.0. Students who have taken ENSC 201 cannot take this course for credit**

**Corequisite: None**

**Special Instructions: i.e. 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 pre-requisite.**

**This course is similar to ENSC 201 and students cannot take both for credit.**

**Course(s) to be dropped if this course is approved:  
None**

**Rationale for Introduction of this Course:**

**This course is intended for final-year students in Engineering with an interest in entrepreneurship and a GPA above 3.0. It will be taught in the same seminar as BUS 477. ENSC and BUS students will attend a weekly lecture together and will collaborate in developing a business plan. This course is introduced as an alternative to ENSC 201, to ensure that those ENSC students collaborating with BUS will have the background and the interest to do so effectively.**

**Scheduling and Registration Information:**

Indicate effective semester/year course would be first offered and planned frequency of offering thereafter. **First offered Fall 2011 and every year thereafter.**

---

**There is a two-semester wait for implementation of any new course.**

Waiver required **Yes**

Will this be a required or elective course in the curriculum?

**ENSC students are required to take either ENSC 201 (the default) or ENSC 411 (an elective option for those who qualify).**

What is the probable enrolment when offered?

**30**

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

**Jones, Abdulhussein**

Are there any proposed student fees associated with this course other than tuition fees? (if so, attach mandatory supplementary fee approval form)

**No.**

**Resource Implications:**

**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.**

Campus where course will be taught: **Burnaby**

**Library report status No library resources required**

Provide details on how existing instructional resources will be redistributed to accommodate this new course. For instance, will another course be eliminated or will the frequency of offering of other courses be reduced; are there changes in pedagogical style or class sizes that allow for this additional course offering?

**This course will require no additional resources. Students will take two of their weekly lectures together with the engineering students in ENSC 201, and the third together with business students in BUS 477.**

Any outstanding resource issues to be addressed prior to implementation: space, laboratory equipment, etc.

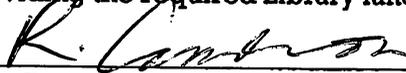
No

**Approvals**

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

	20 Sept 2011
Chair, Dept./School	Date
	Sep 20, 2011
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/Department commits to providing the required Library funds.

 Date: Sep. 27, 2011  
Dean or Designate

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

FACULTY OF BUSINESS - SEE ATTACHED EMAIL  
\_\_\_\_\_  
\_\_\_\_\_

## ENSC 411-4

### The Business of Entrepreneurial Engineering

**Prerequisites:** 90 or more credits; students should have a GPA above 3.00. Students will normally have completed their capstone design course.

**Overview:**

This course is an elective alternative to ENSC 201, Engineering Economics. It covers the entire syllabus of that course: the time value of money, simple and compound interest, replacement analysis, taxes, inflation, and decision-making under conditions of risk and uncertainty. In addition, it involves attending one additional lecture per week of the business course, BUS 477, and working in small teams with the business students in that course to develop a business plan for an engineering invention. Enrollment for this course is restricted in order to ensure that students have the background and motivation to collaborate on equal terms with final-year business students. Students cannot take both courses for credit.

**Course Text:**

*Global Engineering Economics*, Fraser, Jewkes et al.. Pearson 2009.

**Course Requirements:**

Business plan	40%
Mid-term	20%
Final Exam	40%

The School expects that the grades awarded in this course will bear some reasonable relation to established university-wide practices with respect to both levels and distribution of grades. In addition, the School will follow Policy T10.02 with respect to "Intellectual Honesty" and "Academic Discipline" (see the current Calendar, General Regulations section).

**SCHEDULE**

- Week 1: Equivalence
- Week 2: Annuities
- Week 3: Rates of Return
- Week 4: Cost-Benefit Analysis
- Week 5: The Company
- Week 6: Depreciation
- Week 7: Taxation
- Week 8: The CCTF
- Week 9: Inflation
- Week 10: Uncertainty Analysis
- Week 11: Risk Analysis
- Week 12: Decision Trees and the Monte Carlo Method
- Week 13: Qualitative Considerations



SCUS 11-44(b)

EXISTING COURSE, CHANGES RECOMMENDED

Please check appropriate revision(s).

Course number     Credit     Title     Description     Prerequisite     Course deletion

Indicate number of hours for: Lecture \_\_\_\_\_ Seminar \_\_\_\_\_ Tutorial \_\_\_\_\_ Lab \_\_\_\_\_

<b>FROM</b>		<b>TO</b>
Course Number	ENSC 201	Course Number _____
Credits (Units)	3	Credits (Units) _____

TITLE

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

The Business of Engineering

(2) Short title for enrollment and transcript, no more than 50 characters including spaces and punctuation.

DESCRIPTION

DESCRIPTION

PREREQUISITE

45 units

PREREQUISITE

45 units. Students cannot take both this course and ENSC 411 for credit.

RATIONALE

ENSC 411 has been introduced to give an entrepreneurial alternative to ENSC 201 for suitably qualified students.

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**.

Effective term and year Fall 2011



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

Indicate number of hours for: Lecture \_\_\_\_\_ Seminar \_\_\_\_\_ Tutorial \_\_\_\_\_ Lab \_\_\_\_\_

**FROM** \_\_\_\_\_ **to** \_\_\_\_\_

Course Number: ENSC 283 \_\_\_\_\_ Course Number \_\_\_\_\_

Credits (Units) \_\_\_\_\_ Credits (Units) \_\_\_\_\_

3  
TITLE

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

Introduction to Fluid Mechanics

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

Intro. Fluid Mech.

**DESCRIPTION**

Physical properties of fluids and fundamental concepts in fluid mechanics. Hydrostatics. Conservation laws for mass, momentum and energy. Flow similarity and dimensional analysis as applied to engineering problems in fluid mechanics. Laminar and turbulent flow. Engineering applications such as flow measurement, flow in pipes and fluid forces on moving bodies.

PREREQUISITE: From:

PHYS 141, MATH 152, and 310

PREREQUISITE: To:

PHYS 140, MATH 152, and 310

**Rationale**

In the original submission, there was a typo with regards to Physics course. Instead of PHYS 140, it was written PHYS 141. Introduction to Fluid Mechanic (ENSC 283) requires prior knowledge of Mechanics and Modern Physics (ENSC 140).

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**.

Effective term and year Fall 2011



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

Indicate number of hours for: Lecture \_\_\_\_\_ Seminar \_\_\_\_\_ Tutorial \_\_\_\_\_ Lab \_\_\_\_\_

**FROM** \_\_\_\_\_ **to** \_\_\_\_\_

Course Number : \_\_ENSC  
384 \_\_\_\_\_ Course Number \_\_\_\_\_

Credits (Units) \_\_\_\_\_ Credits (Units) \_\_\_\_\_

4  
TITLE

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

Mechatronics Design II

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

Mechatronics Desn. II

DESCRIPTION

Interweaves mechanisms, electronics, sensors, and control strategies with software and information technology to examine the demands and ideas of customers and find the most efficient, cost-effective method to transform their goals into successful commercial products. Most of the term is devoted to a significant design project in which student groups work independently and competitively, applying the design process to a project goal set by the faculty co-ordinator.

PREREQUISITE  
ENSC 382, 381, and 182. ENSC 312, 332 and 387 can either be taken as prerequisites or concurrently  
**Rationale**

PREREQUISITE  
ENSC 382, 381, 182. ENSC 332 and 387 can either be taken as prerequisites or concurrently

Removing ENSC 312 as a prereq: ENSC 312 is not required for ENSC 384.

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**.

Effective term and year Summer 2011



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

Indicate number of hours for: Lecture \_\_\_\_\_ Seminar \_\_\_\_\_ Tutorial \_\_\_\_\_ Lab \_\_\_\_\_

**FROM**

**to**

Course Number: \_\_ENSC  
476 \_\_\_\_\_

Course Number \_\_\_\_\_

Credits (Units) \_\_\_\_\_ Credits (Units) \_\_\_\_\_  
4

TITLE

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

**FROM**  
Biophotonics

**TO:**  
Biophotonics and Microscopy Techniques

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

From: Biophotonics

To Biophotonics/Microscopy

DESCRIPTION FROM

Basic physics of light-biomatter interactions and tissue optics. With this background students will embark on practical issues such as light-induced effects in bio-systems, diagnostic techniques and instrumentation, therapeutic instrumentation and applications, introduction to optical tomography, and finally they will learn about recent developments in optical sensors and applications. Lectures are accompanied by laboratory activities ending with a few basic evaluation projects and a final design and fabrication project. After this course the students will be able to evaluate feasibility of new photonic-based medical devices, such as diagnostic tools and light treatment technologies, and design and optimize these devices.

PREREQUISITE  
ENSC 376

To

Basic physics and applications of light-biomatter interactions, tissue optics and microscopy instrumentation. With this background students will embark on practical issues such as light-induced effects in bio-systems, microscopy diagnostic techniques, therapeutic instrumentation and applications, optical tomography and recent developments in optical sensors. Lectures are accompanied by laboratory evaluation projects plus a final design and fabrication project.

PREREQUISITE  
Phys 121 or 102 or 141 required. ENSC 376 or 470 recommend.

**Rationale**

Rational:

This course expanded to meet the needs for both biomedical engineering students and students in biology or physics. Prereqs changes to fit the wider audience. Also ENSC 470 has replaced ENSC 376 in the course

offerings.

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**.

Effective term and year     **Fall 2011**    

---