

Minutes of the Second Meeting of Senate
Friday, January 11, 2019
3:00 – 5:00 pm
618 University Avenue

- Present:** A. Abd-El-Aziz (Chair), A. Braithwaite, M. Buote, B. Campbell, E. Côté, D. Dahn, L. Doiron, M. Doyle, E. Drake, N. Etkin, A. Fenech, R. Gilmour, K. Gottschall-Pass, L. Hammell, L. Heider, A. Hsiao, G. Irvine, G. Jiwani, R. Kays, G. Keefe, J. Krause, N. Krouglicof, N. Kujundzic, R. MacDonald, A. MacFarlane, W. McGuigan, J. Moran, D. Moses, M. Murray, J. Podger, R. Raiswell, K. Ross, C. Ryan, C. Stevenson, D. Sutton, C. Thorne, and B. Waterman
- Regrets:** R. Bissessur, D. Coll, R. Dennis, C. Murray and S. Grant
- Absent:** K. Bonamy, C. Kamunde, and J. McIntyre
- Recorder:** D. MacLean, Administrative Assistant to Senate

President Alaa Abd-El-Aziz wished everyone a Happy New Year and called the meeting to order at 3:03 p.m. A special welcome was granted to Corey Stevenson, Alumni Rep, who was attending his first Senate meeting.

1. **Approval of Agenda**
MOTION (L. Doiron/R. Raiswell) to approve the agenda as presented. CARRIED

2. **Approval of Minutes – November 23, 2018**
MOTION (L. Doiron/A. Braithwaite) to approve the minutes of November 23, 2018 as presented. CARRIED

3. **Business Arising**
i) Changes to Admin Requirements for MBA : Dean J. Krause was asked to discuss with APCC the rewording of the Admin Requirements for Motion #19 of the 3rd Curriculum Report, November 23, 2018. The previous wording was “The equivalent of a GMAT score of 570 or greater would typically be competitive. The score should be less than five years old. The requirements for a GMAT/GRE score may be waived for students with a high average grade (85% or higher) in their undergraduate degree. For international applicants, the admissions committee may adjust the grade threshold for a GMAT/GRE waiver upwards or downwards, to reflect the grading norms of educational institutions outside of Canada.”

The new wording states the following: ““The equivalent of a GMAT score of 570 or greater would typically be competitive. The score should be less than five years old. The requirement for a GMAT/GRE score may be waived for students with a high average (85% or higher) an exceptional

academic record in their undergraduate degree.” Senators agreed to the new wording and the following motion was proposed:

MOTION (J. Krause/R. MacDonald) to approve the revised wording of the Admin Requirements for MBA as presented. CARRIED

ii) Revised Senate Dates – 2019 Winter Semester

Greg Irvine presented revised Senate Dates for Winter Semester 2019 as well as the following preamble:

“At the November Senate meeting, discussion about the winter schedule of Senate meetings occurred and based on experience during the last two years, Senate asked the Senate Steering and Nominating Committee to revise the schedule. To avoid any overlap with the University’s mid-term break, the school system’s March break, and Fridays before and after these two breaks, the following motion was approved by the Senate Steering and Nominating Committee:

That the 2019 Winter Senate meeting schedule be changed to the following dates:

Friday, January 11th

Friday, March 1st

Friday, April 5th

Friday, May 3rd

The following motion was proposed to Senators:

MOTION (G. Irvine/G. Jiwani) that the 2019 Winter Senate Schedule be changed as presented. CARRIED

4. President’s Report

The President indicated there were two items he wished to address.

Convocation: The President noted that over the past few years there has been an increase in the number of graduating students, thus making each Convocation ceremony long. As well, a number of attendees had to sit in other rooms to watch the Convocation ceremonies due to space limitations in the gym. It has been suggested that perhaps now is the time to move to three Convocation ceremonies. The President discussed this with Sue Dawson, Chair of the Convocation Committee and Brian Wagner, Convocation Marshall, and they will be discussing this suggestion with the Convocation Committee when it meets next week. Senators were asked to consider this suggestion and provide any comments to the President’s office so that their views can be passed along to the Committee for consideration. One suggestion from Senate was a possible move to a different venue. Another Senator suggested changing the Convocation dates to a different weekend other than Mother’s Day Weekend. All of these suggestions will be given consideration by the committee and a proposal will be provided at the next Senate meeting.

Interest in Programs: The President informed Senators that he recently spoke at a National

Conference on Education in Egypt. He noted there was a lot of interest around what UPEI is doing in the following programs: Psychology, Political Science, Economics, Applied Communication, Leadership and Culture and Theatre Arts. The Chair of the Board of UCE is coming to campus next week and will be meeting with deans. The outcome of these meetings will be reported at the next Senate meeting.

Our collaboration with King Juan Carlos University in Spain is working out very well. Currently we have 14 students enrolled in the program, and they are on their way to Madrid to start the second semester.

President Abd-El-Aziz informed Senators that he just recently returned from Dubai where there is very strong interest in two of our programs – Climate Change and Environmental Studies. The process to approve programs in Dubai is a similar process to our MPHEC process. We are preparing materials to send to Dubai by the end of January and if things work out, we hope to have our first cohort in place in September 2019.

MEETING MOVED IN CAMERA

5. Students Applying to Graduate before Convocation

At this time there are 120 students applying to graduate before Convocation.

The following motions were brought forward by R. Gilmour and individually seconded by Senators;

Omnibus motion (R. Gilmour/N.Kujundzic) that Senate approve the credentials for the 17 candidates listed as having completed the requirements for the following degrees with the Faculty of Arts:

FACULTY OF ARTS	
Bachelor of Arts	16
Master of Arts	1
<hr/>	
TOTAL - Faculty of Arts	17

CARRIED

Omnibus motion (R. Gilmour/B. Waterman) that Senate approve the credentials for the 20 candidates listed as having completed the requirements for the following degrees and/or certificates with the Faculty of Business:

FACULTY OF BUSINESS	
Bachelor of Business Administration	19
Master of Business Administration	1
<hr/>	
TOTAL - Faculty of Business	20

CARRIED

Omnibus motion (R. Gilmour/R. MacDonald) that Senate approve the credentials for the 43 candidates listed as having completed the requirements for the following degrees and/or certificates with the Faculty of Education:

FACULTY OF EDUCATION	
Certificate in Adult Education	7
Certificate in Education Leadership	2
Master of Education	33
PhD in Educational Studies	1
TOTAL - Faculty of Education	43

CARRIED

Omnibus motion (R. Gilmour/N. Krouglicof) that Senate approve the credentials for the 3 candidates listed as having completed the requirements for the following degrees with the Faculty of Sustainable Design Engineering:

FACULTY OF SUSTAINABLE DESIGN ENGINEERING	
Engineering Diploma	2
Master of Science in Sustainable Design Engineering	1
TOTAL - Faculty of Sustainable Design Engineering	3

CARRIED

Omnibus motion (R. Gilmour/G. Keefe) that Senate approve the credentials for the 3 candidates listed as having completed the requirements for the following degrees with the Faculty of Veterinary Medicine:

FACULTY OF VETERINARY MEDICINE	
Master of Science (Veterinary Medicine)	2
PhD in Biomedical Sciences	1
TOTAL - Faculty of Veterinary Medicine	3

CARRIED

Enabling Motion (R. Gilmour/B. Campbell) to empower the President, relevant Dean and Registrar, acting together in full agreement to approve any degrees, diplomas or certificates that may surface as unexpected cases. CARRIED

Dr. Gilmour informed Senators that all of these files were vetted by the Registrar and it was determined that every graduate had completed their degree and paid all pertinent fees. Such was not the case for some Master of Education students this year. Some students completed their degree early but hadn't paid all their fees, and refused to pay after completing the degree requirements early. Dr. Gilmour noted that students are required to pay the same amount for the same degree, regardless if they finish the course work early. A solution needs to be determined in order to avoid this scenario in the future.

6. Update on Search for University Librarian

At this time, Donald Moses was asked to leave the meeting, as he is one of the candidates vying for the position. Dr. Gilmour informed Senators that three candidates have been shortlisted and will be providing a public presentation to the members of the Search Committee as well as the University community in the next 2-3 weeks. These presentations will be videotaped and available for viewing after the events. Dr. Gilmour noted that feedback would be appreciated on all candidates.

7. Update on the Suggestion of a Mid-term Break – Fall Semester 2020-2021

Dr. Gilmour reported that discussions took place at APCC regarding the above-mentioned suggestion. The Registrar will look into best practices at other Universities and report back to APCC. The Student Union agreed to canvass students here and off island as to the impact this would have on students. APCC will consider specific options and bring these options to Senate for further discussion.

8. Update on the Academic Planning and Curriculum Committee membership

Dr. Gilmour noted that at the last meeting of Senate, questions were raised about the accurateness of the membership of the APCC in the Annual Report of 2017-2018. Larry Hammell was listed as Dean of Graduate Studies, but this should have read "Interim Dean" of Graduate Studies. There was also a lack of mention of the Dean of Sustainable Design Engineering, but Dr. Krouglicof was not Dean during the timeframe of this report.

9. Senate Reports

- a. Academic Planning and Curriculum Committee Report
 - i) Fourth Curriculum Report

FACULTY OF ARTS

Psychology

- 1. Motion (R. Gilmour/K. Gottschall-Pass) to approve the new course PSY 4130 – Psychology of Social Class.**

(See details on the Curriculum Report Attached – Pages 3-4)

CARRIED

FACULTY OF EDUCATION

2. **Motion (R. Gilmour/R. MacDonald) that the prerequisite for ED 6950 – Graduate Seminar be revised.**
(See details on the Curriculum Report Attached – Page 5)

CARRIED

FACULTY OF SUSTAINABLE DESIGN ENGINEERING

OMNIBUS Motion (R. Gilmour/N. Krouglicof) that motions 3-10 be approved as noted below:

3. **That ENGN 2120 (Geology for Engineers) be deleted.**
(See details on the Curriculum Report Attached – Page 6)
4. **That ENGN 2240 (Introduction to Structural Engineering) be deleted.**
(See details on the Curriculum Report Attached – Page 7)
5. **That ENGN 2350 (Kinematics and Dynamics of Machines) be deleted.**
(See details on the Curriculum Report Attached – Page 8)
6. **That ENGN 2420 (Fundamentals of Environment Engineering) be deleted.**
(See details on the Curriculum Report Attached – Page 9)
7. **That ENGN 2430 (Engineering Economics) be deleted.**
(See details on the Curriculum Report Attached – Page 10)
8. **That ENGN 2520 (Fundamentals of Process Engineering) be deleted.**
(See details on the Curriculum Report Attached – Page 11)
9. **That ENGN 2820 (Electric Circuits) be deleted.**
(See details on the Curriculum Report Attached – Page 12)
10. **That ENGN 3850 (Engineering Applications of Numerical Methods) be deleted.**
(See details on the Curriculum Report Attached – Page 13)

OMNIBUS Motion (R. Gilmour/A. Hsiao) that motions 11-15 be approved as noted below:

11. **That a new course entitled ENGN 1230 (Engineering Mechanics I: Statics) be approved as presented.**
(See details on the Curriculum Report Attached – Pages 14-16)

12. To approve the new course ENGN 2130 (statistics for Engineering Applications).

(See details on the Curriculum Report Attached – Pages 17-19)

13. That ENGN 2350 (Kinematics and Dynamics of Machines) be deleted.

(See details on the Curriculum Report Attached – Pages 20-22)

14. To approve the new course ENGN 4830 (Biomedical Signal Processing).

(See details on the Curriculum Report Attached – Pages 23-25)

15. To approve the new course ENGN 4850 (Computational Methods for Engineering Design).

(See details on the Curriculum Report Attached – Pages 26-28)

OMNIBUS Motion (R. Gilmour/A. Hsiao) that motions 16-37 be approved as noted below:

16. To approve the proposed changes for ENGN 1210 (Engineering Communications).

(See details on the Curriculum Report Attached – Page 29)

17. To approve the proposed changes for ENGN 1220 (Engineering Analysis).

(See details on the Curriculum Report Attached – Pages 30-31)

18. To approve the proposed changes for ENGN 2250 (Materials Science).

(See details on the Curriculum Report Attached – Page 32)

19. To approve the proposed changes for ENGN 1310 (Computer Programming with Engineering Applications).

(See details on the Curriculum Report Attached – Page 33)

20. To approve the proposed changes for ENGN 2340 (Engineering Dynamics)

(See details on the Curriculum Report Attached – Page 34)

21. To approve the proposed changes for ENGN 2210 (Engineering Projects I).

(See details on the Curriculum Report Attached – Page 35)

22. To approve the proposed changes for ENGN 2220 (Engineering Projects II).

(See details on the Curriculum Report Attached – Page 36)

23. To have the change in prerequisite for ENGN 2310 (Strength of Materials) be approved as proposed.

(See details on the Curriculum Report Attached – Page 37)

- 24. To have the change in course number and description for ENGN 3260 (Materials, Mechanics, and Manufacturing) be approved as proposed.**
(See details on the Curriculum Report Attached – Pages 38-39)
- 25. To have the change in course title and prerequisite for ENGN 2610 (Thermo Fluids I) be approved as proposed.**
(See details on the Curriculum Report Attached – Page 40)
- 26. To have the change in course title for ENGN 2620 (Thermo Fluids II) be approved as proposed.**
(See details on the Curriculum Report Attached – Page 41)
- 27. To approve the proposed changes for ENGN 2810 (Electric Circuits I).**
(See details on the Curriculum Report Attached – Page 42)
- 28. To approve the proposed changes for ENGN 4230 (Technology Management & Entrepreneurship).**
(See details on the Curriculum Report Attached – Page 43)
- 29. To approve the proposed changes for ENGN 3630 (Thermo Fluids III with Heat Transfer).**
(See details on the Curriculum Report Attached – Page 44)
- 30. To approve the proposed changes for ENGN 3710 (Project-Based Professional Practice I).**
(See details on the Curriculum Report Attached – Page 45)
- 31. To approve the proposed changes for ENGN 3720 (Project-Based Professional Practice II).**
(See details on the Curriculum Report Attached – Page 46)
- 32. To approve the prerequisite change for ENGN 4310 (Advanced Fabrication Techniques and Computer-Integrated Manufacturing).**
(See details on the Curriculum Report Attached – Page 47)
- 33. To have the change in the course title and course description of ENGN 4550 (Chemical and Biological Processes) be approved as proposed.**
(See details on the Curriculum Report Attached – Page 48)
- 34. To approve the proposed changes for ENGN 4710 (Project-Based Professional Practice III).**
(See details on the Curriculum Report Attached – Pages 49-50)

- 35. To approve the proposed changes for ENGN 4720 (Project-Based Professional Practice IV).**
(See details on the Curriculum Report Attached – Pages 51-52)
- 36. To revise the calendar entry for admission criteria for high school applicants to the Bachelor of Science in Sustainable Design Engineering degree program.**
(See details on the Curriculum Report Attached – Pages 53-54)
- 37. To revise the calendar entry for the Bachelor of Science in Sustainable Design Engineering degree program.**
(See details on the Curriculum Report Attached – Pages 55-63)

Master of Science in Sustainable Design Engineering

OMNIBUS Motion (R. Gilmour/A. Hsiao) that motions 38-49 be approved as noted below:

- 38. To approve a new cross-listing for ENGN 4310 (Advanced Fabrication Techniques and Computer-Integrated Manufacturing).**
(See details on the Curriculum Report Attached – Pages 64-65)
- 39. To approve a new cross-listing for ENGN 4320 Control System Design.**
(See details on the Curriculum Report Attached – Page 66)
- 40. To approve a new cross-listing for ENGN 4350 Advanced Robotic Dynamics and Control.**
(See details on the Curriculum Report Attached – Page 67)
- 41. To approve a new cross-listing for ENGN 4370 Fluid Power Control.**
(See details on the Curriculum Report Attached – Page 68)
- 42. To approve a new cross-listing for ENGN 4410 Macro Energy Systems.**
(See details on the Curriculum Report Attached – Page 69)
- 43. To approve a new cross-listing for ENGN 4440 Advanced Energy Storage.**
(See details on the Curriculum Report Attached – Page 70)
- 44. To approve a new cross-listing for ENGN 4450 Fluid Loads on Energy Structures.**
(See details on the Curriculum Report Attached – Page 71)
- 45. To approve a new cross-listing for ENGN 4470 Micro Grids.**
(See details on the Curriculum Report Attached – Page 72)

- 46. To approve a new cross-listing for ENGN 4510 Geoinformatics in Bioresources.**
(See details on the Curriculum Report Attached – Page 73)
- 47. To approve a new cross-listing for ENGN 4530 Fundamentals of Agriculture Machinery.**
(See details on the Curriculum Report Attached – Page 74)
- 48. To approve a new cross-listing for ENGN 4550 Chemical and Biological Processes.**
(See details on the Curriculum Report Attached – Page 75)
- 49. To approve a new cross-listing for ENGN 4830 Biomedical Signal Processing.**
(See details on the Curriculum Report Attached – Page 76)

FACULTY OF SCIENCE

Applied Human Sciences

OMNIBUS Motion (R. Gilmour/K. Gottschall-Pass) that motions 50-55 be approved as noted below:

- 50. That the course title and description for FN 1010 Nutrition for Living be approved as proposed.**
(See details on the Curriculum Report Attached – Page 79)
- 51. That the pre-requisite change for FN 3820 be approved as proposed.**
(See details on the Curriculum Report Attached – Page 80)
- 52. To approve the proposed changes to the Foods and Nutrition Minor.**
(See details on the Curriculum Report Attached – Page 81)
- 53. To approve the proposed changes to the Foods and Nutrition Major.**
(See details on the Curriculum Report Attached – Pages 82-84)
- 54. To approve the proposed changes to the Foods and Nutrition Dietetic Option.**
(See details on the Curriculum Report Attached – Pages 85-86)
- 55. To approve the proposed changes to the Foods and Nutrition Honours.**
(See details on the Curriculum Report Attached – Pages 87-89)

Biology

- 56. Motion (R. Gilmour/K. Gottshall-Pass) to approve the proposed changes for the Paramedicine program.**

(See details on the Curriculum Report Attached – Pages 90-92)

Chemistry

OMNIBUS Motion (R. Gilmour/K. Gottschall-Pass) that motions 57-61 be approved as noted below:

- 57. To approve the new courses MMS 8140 Marine Natural Products Chemistry.**

(See details on the Curriculum Report Attached – Pages 93-95)

- 58. To approve the new course CHEM 4140 Marine Natural Products Chemistry.**

(See details on the Curriculum Report Attached – Pages 96-98)

- 59. That CHEM 4690 Materials Chemistry be cross-listed with MMS 8690 Materials Chemistry.**

(See details on the Curriculum Report Attached – Page 99)

- 60. To approve the proposed changes for MMS 8090 Biomaterials.**

(See details on the Curriculum Report Attached – Page 100)

- 61. To approve the proposed changes for MMS 8050 Advanced Studies in NMR Spectroscopy.**

(See details on the Curriculum Report Attached – Pages 101-102)

Environmental Studies

- 62. Motion (R. Gilmour/L. Doiron) to approve the proposed changes for ESC 8020 Communication Strategies.**

(See details on the Curriculum Report Attached – Pages 103-104)

Physics

OMNIBUS Motion (R. Gilmour/D. Dahn) that motions 63-64 be approved as noted below:

- 63. To approve the proposed changes for PHYSICS 1110 General Physics I.**

(See details on the Curriculum Report Attached – Page 105)

- 64. To approve the proposed changes for PHYSICS 1120 General Physics II.**

(See details on the Curriculum Report Attached – Page 106)

8. Other Business

There was no other business.

9. Adjournment

MOTION (L. Doiron) that the meeting be adjourned at 4:15 p.m.

Attachment: Fourth Curriculum Report – January 11, 2019

Motion		Page
	FACULTY OF ARTS	
	Psychology	
1	PSY 4130 New Course Proposal	3-4
	FACULTY OF EDUCATION	
2	ED-6950 Calendar & Curriculum Change – Pre-requisite Change	5
	FACULTY OF SUSTAINABLE DESIGN ENGINEERING	
3-10	ENGN 2120, 2240, 2350, 2420, 2430, 2520, 2820, 3850 Course Deletions	6-13
11-15	ENGN 1230, 2130, 2830, 4830, 4850 New Course Proposals	14-28
16	ENGN 1210 Calendar & Curriculum Change – Course Description/Prerequisite and laboratory wording change	29
17	ENGN 1220 Calendar & Curriculum Change – Course Description/Laboratory wording change	30-31
18	ENGN 2250 Calendar & Curriculum Change – Course Number/Course Description and Prerequisite change	32
19	ENGN 1310 Calendar & Curriculum Change – Course Description/Laboratory hours change	33
20	ENGN 2340 Calendar & Curriculum Change – Course Number/Course Name/Prerequisite change	34
21	ENGN 2210 Calendar & Curriculum Change – Course Description/Prerequisite/laboratory wording change	35
22	ENGN 2220 Calendar & Curriculum Change – Course Description/laboratory wording change	36
23	ENGN 2310 Calendar & Curriculum Change – Prerequisite change	37
24	ENGN 3260 Calendar & Curriculum Change – Course Number/Description change	38-39
25	ENGN 2610 Calendar & Curriculum Change – Course Title/Prerequisite change	40
26	ENGN 2620 Calendar & Curriculum Change – Course Title change	41
27	ENGN 2810 Calendar & Curriculum Change – Course Title/Description/Prerequisite/Laboratory wording change	42
28	ENGN 4230 Calendar & Curriculum Change – Course Number/Description/Prerequisite change	43
29	ENGN 3630 Calendar & Curriculum Change – Course Title/Description/Prerequisite change	44
30	ENGN 3710 Calendar & Curriculum Change – Course Description/Prerequisite/laboratory wording change	45
31	ENGN 3720 Calendar & Curriculum Change – Course Description/laboratory wording change	46
32	ENGN 4310 Calendar & Curriculum Change – Course Prerequisite change	47
33	ENGN 4550 Calendar & Curriculum Change – Course Title/Description change	48

34	ENGN 4710	Calendar & Curriculum Change - Course Description/Prerequisite/laboratory wording change	49-50
35	ENGN 4720	Calendar & Curriculum Change – Course Description/laboratory wording change	51-52
36	Engineering Program	Calendar Entry Change – Admission Requirements	53-54
37	Engineering Degree Program	Calendar Entry Change	55-63
Master of Science in Sustainable Design Engineering			
38-49	SDE 8310, 8320, 8350, 8370, 8410, 8440, 8450, 8470, 8510, 8530, 8550, 8830	Calendar & Curriculum Change – Cross-listing change	64-77
FACULTY OF SCIENCE			
Summary of Motions 50-64			78
Applied Human Sciences			
50	FN-1010	Calendar & Curriculum Change – Course Description/Title Change	79
51	FN-3820	Calendar & Curriculum Change – Pre-requisite Change	80
52	Foods and Nutrition Minor	Calendar Entry Change	81
53	Foods and Nutrition Major	Calendar Entry Change	82-84
54	Foods and Nutrition Dietetic Option	Calendar Entry Change	85-86
55	Foods and Nutrition Honours	Calendar Entry Change	87-89
Biology			
56	Paramedicine Program	Calendar Entry Change	90-92
Chemistry			
57	MMS 8140	New Course Proposal	93-95
58	CHEM 4140	New Course Proposal	96-98
59	CHEM 4690	Calendar & Curriculum Change – Pre-requisite Change	99
60	MMS 8090	Calendar & Curriculum Change – Cross-listing	100
61	MMS 8050	Calendar & Curriculum Change – Cross-listing	101-102
Environmental Studies			
62	ENV-4330	Calendar & Curriculum Change – Cross-listing and Course Description Change	103-104
Physics			
63-64	PHYS-1110, 1120	Calendar & Curriculum Change – Course Description Changes	105-106

NEW COURSE PROPOSAL

Motion #1

Faculty/School: **Arts**

Department/Program(s): **Department of Psychology**

MOTION: To approve the new course PSY 4130 - Psychology of Social Class.

Course Number and Title	PSY 4130 – Psychology of Social Class
Description	This course explores the role that social stratification plays in human thought, behaviour and experience. It studies the history of social stratification and the relatively recent emergence of a class based society. It examines some of the ways that psychologists and other social scientists have integrated social class into their work. A rigorous interrogation of everyday experiences of economic injustice is central to this course. Topics may include the way that social class intersects with a range of identity categories, classism, poverty, inequality, commodity fetishism, and consumer society.
Cross-Listing	Diversity and Social Justice Studies 4130
Prerequisite/Co-Requisite	Psychology 1010-1020, 2020 and 2780-2790, or 2510, or Permission of Instructor. If taking DSJS 4130, the prerequisites are DSJS 1090 and two other DSJS courses at the 3000 or 4000 level
Credit(s)	3
Notation	Three hours a week.

This is: An Elective Course

Grade Mode: Numeric (Standard)

Anticipated Enrolment: 20
It is a seminar style fourth year course.

Is there an Enrolment Cap: Yes

Rationale for New Course: To encourage students to see the role that class stratification plays in modern psychological research and practice and to understand how critical psychology can inform modern social justice movements

Effective Date: January 2019

Implications for Other Programs: None

Impact on Students Currently Enrolled: This course provides another course at a 4000-level for students.

Resources Required: No resources or library support needed.

In offering this course will UPEI require facilities or staff at other institutions: No

Authorization	Date:
Departmental Approval: Dr. Jason Doiron	March 9, 2018
Faculty/School Approval: Arts Curriculum Cttee	September 17, 2018
Faculty Dean's Approval: Neb Kujundzic	September 17, 2018
Graduate Studies Dean's Approval: N/A	N/A
Registrar's Office Approval: Pam McGuigan	October 5, 2018
APCC Meeting Date Approval	December 20, 2018



NEW COURSE PROPOSAL

Motion #1

LIBRARY RESOURCE REQUIREMENTS FOR A NEW COURSE PROPOSAL

PSY 4130 – Psychology of Social Class

Library Resource Requirements *(to be completed by the liaison and/or collections librarian)*

Existing resources:

- Collections - Holdings, Subscriptions, Other – PsycInfo, PsycArticles, SocIndex with Full Text
- Subscription Dependencies (in interdisciplinary packages) – key journals to support this course are included in the multi-disciplinary “Big Deal” publisher packages: Taylor & Francis Social Sciences and Humanities, Wiley Online Library, and Sage Premier. Many relevant ebooks are included in our two big ebook subscription packages, EBSCO North American Academic Collection and Proquest Academic Complete.
- Physical Space in Library (other than holdings, explain): none
- Library Administrative/Research Support : none

New resources needed to support this proposal:

- Capital Requirements *(other than new course-specific)* - none
- Collections: none
 - Monographs
 - Subscriptions
 - Databases
 - Other
- Physical Space in Library (other than holdings, explain) none
- Library Administrative/Research Support none
- Other One-Time or Ongoing Library expenses (e.g. software licenses)

Summary of additional budget allocation required:

- One-time: 0 For each of consecutive years
- Annual: 0
 - Per-year percentage increase in annual: 0

Does the budget allocation for library resources in this proposal meet the requirement? yes

Date Received by Liaison/Collections Librarian	May 31, 2018
Name of Librarian to be Contacted for Questions	Melissa Belvadi
Approved by University Librarian or Designate - Name	Donald Moses
Date Approved by UL or Designate	June 5, 2018

CALENDAR & CURRICULUM CHANGE

Motion #2

Revision is for a: **Co-requisite Addition/Change**

Faculty/School/Department: **Education**

Department/Program(s)/Academic Regulations: **MEd Graduate Studies**

MOTION: That the prerequisite for ED 6950 - Graduate Seminar be revised.

<u>Reproduction of Current Calendar Entry</u>	<u>Proposed revision with changes underlined and deletions indicated clearly</u>
<p>ED 6950 Graduate Seminar In this course, students attend and present seminars on topics in their discipline, are evaluated on their seminars, and provide constructive criticism to others giving seminars in the course. PREREQUISITE: Education 6110, 6120/6130, 6140, 6150, 6160, or permission of the instructor HOURS OF CREDIT: 3</p>	<p>ED 6950 Graduate Seminar In this course, students attend and present seminars on topics in their discipline, are evaluated on their seminars, and provide constructive criticism to others giving seminars in the course. <u>CO- or</u> PREREQUISITE: Education 6110, <u>6120/6130, 6140, 6150, 6160</u>, or permission of the instructor <u>Graduate Studies Coordinator</u> HOURS OF CREDIT: 3</p>

Rationale for Change: ED-6950 is one of the first courses students take in their MEd program, as it provides a foundational overview of topics in Education and is designed to deepen the knowledge and presentation skills required to be successful in the program. Given the timing of the course, ED-6120, ED-6130, ED-6140, ED-6150, and ED-6160 are no longer required as pre-requisites.

Effective Date: January 2019

Implications for Other Programs: no implications

Impact on Students Currently Enrolled: no implications

Authorization	Date:
Departmental Approval: Faculty of Educ. Graduate Studies Committee	September 19, 2018
Faculty/School Approval: Faculty of Education Council	November 7, 2018
Faculty Dean's Approval: Dr. Ron MacDonald, Dean	November 7, 2018
Graduate Studies Dean's Approval: N/A	N/A
Registrar's Office Approval: Pam McGuigan	November 14, 2018
APCC Meeting Date Approval	December 20, 2018

CALENDAR & CURRICULUM CHANGE

Motion #3

Revision is for a: **Course Deletion**

Faculty/School/Department: **Sustainable Design Engineering**

Department/Program(s)/Academic Regulations: **Bachelor of Science in Sustainable Design Engineering**

MOTION: That ENGN 2120 (Geology for Engineers) be deleted.

<u>Reproduction of Current Calendar Entry</u>	<u>Proposed revision with changes underlined and deletions indicated clearly</u>
<p>2120 GEOLOGY FOR ENGINEERS</p> <p>This course provides a basic overview of key geological processes and principles with emphasis on practical aspects of geology as they apply to engineering and related disciplines. Topics include rock types, rock formation, plate tectonics, glaciation, erosion, earth materials, geological mapping, stratigraphy and structural geology. An appreciation for ore forming processes, mineral resources, geothermal energy, environmental geology, and groundwater resources is also development. Laboratory activities focus on basic mineral and rock identification, and interpretation of topographic and geological maps.</p> <p>PREREQUISITE: Admission to the Engineering Program or admission to the Environmental Studies Program</p> <p>Three lecture hours per week</p>	<p>2120 GEOLOGY FOR ENGINEERS</p> <p>This course provides a basic overview of key geological processes and principles with emphasis on practical aspects of geology as they apply to engineering and related disciplines. Topics include rock types, rock formation, plate tectonics, glaciation, erosion, earth materials, geological mapping, stratigraphy and structural geology. An appreciation for ore forming processes, mineral resources, geothermal energy, environmental geology, and groundwater resources is also development. Laboratory activities focus on basic mineral and rock identification, and interpretation of topographic and geological maps.</p> <p>PREREQUISITE: Admission to the Engineering Program or admission to the Environmental Studies Program</p> <p>Three lecture hours per week</p>

Rationale for Change: This course will no longer be offered starting in September 2020 due to the termination of the degree transfer options with UNB and DAL.

Effective Date: September 2020

Implications for Other Programs: None

Impact on Students Currently Enrolled: None. No students remaining for transfer past this date.

Authorization	Date:
Departmental Approval: N/A	N/A
Faculty/School Approval: N/A	N/A
Faculty Dean's Approval: Dr. Nicholas Krouglicof	October 24, 2018
Graduate Studies Dean's Approval: N/A	N/A
Registrar's Office Approval: Pam McGuigan	November 14, 2018
APCC Meeting Date Approval	December 20, 2018

CALENDAR & CURRICULUM CHANGE

Motion #4

Revision is for a: **Course Deletion**

Faculty/School/Department: **Sustainable Design Engineering**

Department/Program(s)/Academic Regulations: **Bachelor of Science in Sustainable Design Engineering**

MOTION: That ENGN 2240 (Introduction to Structural Engineering) be deleted.

<u>Reproduction of Current Calendar Entry</u>	<u>Proposed revision with changes underlined and deletions indicated clearly</u>
<p>2240 INTRODUCTION TO STRUCTURAL ENGINEERING</p> <p>This course is an introduction to the field of structural analysis as an applied discipline. Building on deflection and truss analysis from previous mechanics courses, students are exposed to concepts of influence, flexibility, stiffness, impact and other analytical techniques and dynamic loading in rigid structures. The National Building Code and material resistance is also introduced.</p> <p>PREREQUISITE: Engineering 2310</p> <p>Three hours of lecture and three hours of lab per week</p>	<p>2240 INTRODUCTION TO STRUCTURAL ENGINEERING</p> <p>This course is an introduction to the field of structural analysis as an applied discipline. Building on deflection and truss analysis from previous mechanics courses, students are exposed to concepts of influence, flexibility, stiffness, impact and other analytical techniques and dynamic loading in rigid structures. The National Building Code and material resistance is also introduced.</p> <p>PREREQUISITE: Engineering 2310</p> <p>Three hours of lecture and three hours of lab per week</p>

Rationale for Change: This course will no longer be offered starting in September 2020 due to the termination of the degree transfer options with UNB and DAL.

Effective Date: September 2020

Implications for Other Programs: None.

Impact on Students Currently Enrolled: None. No students remaining for transfer past this date.

<i>Authorization</i>	<i>Date:</i>
Departmental Approval: N/A	N/A
Faculty/School Approval: N/A	N/A
Faculty Dean's Approval: Dr. Nicholas Krouglicof	October 24, 2018
Graduate Studies Dean's Approval: N/A	N/A
Registrar's Office Approval: Pam McGuigan	November 13, 2018
APCC Meeting Date Approval	December 20, 2018



CALENDAR & CURRICULUM CHANGE

Motion #5

Revision is for a: **Course Deletion**

Faculty/School/Department: **Sustainable Design Engineering**

Department/Program(s)/Academic Regulations: **Bachelor of Science in Sustainable Design Engineering**

MOTION: That ENGN 2350 (Kinematics and Dynamics of Machines) be deleted.

<u>Reproduction of Current Calendar Entry</u>	<u>Proposed revision with changes underlined and deletions indicated clearly</u>
<p>2350 KINEMATICS AND DYNAMICS OF MACHINES This course introduces fundamental concepts in the analysis of linkages and other aspects of complex machinery. Using graphical and analytical methods and relying on static and dynamic principles previously learned, students are exposed to a variety of cams, gears and trains in an applied context. Simple gyroscopic effects are also introduced. PREREQUISITE: Engineering 2340 and Math 1920 Three hours lecture and three hours of laboratory per week</p>	<p>2350 KINEMATICS AND DYNAMICS OF MACHINES This course introduces fundamental concepts in the analysis of linkages and other aspects of complex machinery. Using graphical and analytical methods and relying on static and dynamic principles previously learned, students are exposed to a variety of cams, gears and trains in an applied context. Simple gyroscopic effects are also introduced. PREREQUISITE: Engineering 2340 and Math 1920 Three hours lecture and three hours of laboratory per week</p>

Rationale for Change: This course will no longer be offered starting in September 2020 due to the termination of the degree transfer options with UNB and DAL.

Effective Date: September 2020

Implications for Other Programs: None.

Impact on Students Currently Enrolled: None. No students remaining for transfer past this date.

<i>Authorization</i>	<i>Date:</i>
Departmental Approval: N/A	N/A
Faculty/School Approval: N/A	N/A
Faculty Dean's Approval: Dr. Nicholas Krouglicof	October 24, 2018
Graduate Studies Dean's Approval: N/A	N/A
Registrar's Office Approval: Pam McGuigan	November 13, 2018
APCC Meeting Date Approval	December 20, 2018



CALENDAR & CURRICULUM CHANGE

Motion #6

Revision is for a: **Course Deletion**

Faculty/School/Department: **Sustainable Design Engineering**

Department/Program(s)/Academic Regulations: **Bachelor of Science in Sustainable Design Engineering**

MOTION: That ENGN 2420 (Fundamentals of Environment Engineering) be deleted.

<u>Reproduction of Current Calendar Entry</u>	<u>Proposed revision with changes underlined and deletions indicated clearly</u>
<p>2420 FUNDAMENTALS OF ENVIRONMENTAL ENGINEERING This course is an introduction to the field of environmental engineering with a focus on understanding the effects of man-made pollutants on natural systems (physical, chemical). Particular emphasis is placed on the identification, analysis and design of solid and wastewater management systems in a sustainable and responsible manner. PREREQUISITE: Engineering 1410 and Chemistry 1120 Three hours of lecture and two hours of tutorial per week</p>	<p>2420 FUNDAMENTALS OF ENVIRONMENTAL ENGINEERING This course is an introduction to the field of environmental engineering with a focus on understanding the effects of man made pollutants on natural systems (physical, chemical). Particular emphasis is placed on the identification, analysis and design of solid and wastewater management systems in a sustainable and responsible manner. PREREQUISITE: Engineering 1410 and Chemistry 1120 Three hours of lecture and two hours of tutorial per week</p>

Rationale for Change: This course is no longer offered.

Effective Date: September 2019

Implications for Other Programs: None.

Impact on Students Currently Enrolled: None

Authorization	Date:
Departmental Approval: N/A	N/A
Faculty/School Approval: N/A	N/A
Faculty Dean's Approval: Dr. Nicholas Krouglicof	October 24, 2018
Graduate Studies Dean's Approval: N/A	N/A
Registrar's Office Approval: Pam McGuigan	November 13, 2018
APCC Meeting Date Approval	December 20, 2018

CALENDAR & CURRICULUM CHANGE

Motion #7

Revision is for a: **Course Deletion**

Faculty/School/Department: **Sustainable Design Engineering**

Department/Program(s)/Academic Regulations: **Bachelor of Science in Sustainable Design Engineering**

MOTION: That ENGN 2430 (Engineering Economics) be deleted.

<u>Reproduction of Current Calendar Entry</u>	<u>Proposed revision with changes underlined and deletions indicated clearly</u>
<p>2430 ENGINEERING ECONOMICS This course provides students with the fundamentals of engineering economics and finance financial aspects in the context of professional engineering practice. Topics include the time value of money, project screening, cost estimation, and discounting analysis techniques. Economic analysis of depreciation, maintenance, replacement and upgrading and the impact of taxes, inflation and time on infrastructure development. Relevant software and projects are used. PREREQUISITE: Admission to the Engineering Program Three hours lecture and three-hour tutorial per week</p>	<p>2430 ENGINEERING ECONOMICS This course provides students with the fundamentals of engineering economics and finance financial aspects in the context of professional engineering practice. Topics include the time value of money, project screening, cost estimation, and discounting analysis techniques. Economic analysis of depreciation, maintenance, replacement and upgrading and the impact of taxes, inflation and time on infrastructure development. Relevant software and projects are used. PREREQUISITE: Admission to the Engineering Program Three hours lecture and three hour tutorial per week</p>

Rationale for Change: This course will no longer be offered starting in September 2020 due to the termination of the degree transfer options with UNB and DAL.

Effective Date: September 2020

Implications for Other Programs: None.

Impact on Students Currently Enrolled: None. No students remaining for transfer past this date.

Authorization	Date:
Departmental Approval: N/A	N/A
Faculty/School Approval: N/A	N/A
Faculty Dean's Approval: Dr. Nicholas Krouglicof	October 24, 2018
Graduate Studies Dean's Approval: N/A	N/A
Registrar's Office Approval: Pam McGuigan	November 13, 2018
APCC Meeting Date Approval	December 20, 2018

CALENDAR & CURRICULUM CHANGE

Motion #8

Revision is for a: **Course Deletion**

Faculty/School/Department: **Sustainable Design Engineering**

Department/Program(s)/Academic Regulations: **Bachelor of Science in Sustainable Design Engineering**

MOTION: That ENGN 2520 (Fundamentals of Process Engineering) be deleted.

<u>Reproduction of Current Calendar Entry</u>	<u>Proposed revision with changes underlined and deletions indicated clearly</u>
<p>2520 FUNDAMENTALS OF PROCESS ENGINEERING</p> <p>The main objective of this course is to develop the student's ability to perform mass and energy balances on reactive and non-reactive processes. Introductory topics include systems of units and a study of process variables such as temperature, pressure, and flowrate. Also covered are fundamental properties of multiphase systems: phase equilibrium, vapour pressure, phase rule, Raoult's and Henry's Laws, and colligative properties. Emphasis is placed on developing problem-solving skills.</p> <p>PREREQUISITE: Engineering 2610</p> <p>Three lecture hours and two tutorial hours per week</p>	<p>2520 FUNDAMENTALS OF PROCESS ENGINEERING</p> <p>The main objective of this course is to develop the student's ability to perform mass and energy balances on reactive and non-reactive processes. Introductory topics include systems of units and a study of process variables such as temperature, pressure, and flowrate. Also covered are fundamental properties of multiphase systems: phase equilibrium, vapour pressure, phase rule, Raoult's and Henry's Laws, and colligative properties. Emphasis is placed on developing problem-solving skills.</p> <p>PREREQUISITE: Engineering 2610</p> <p>Three lecture hours and two tutorial hours per week</p>

Rationale for Change: This course will no longer be offered starting in September 2020 due to the termination of the degree transfer options with UNB and DAL.

Effective Date: September 2020

Implications for Other Programs: None.

Impact on Students Currently Enrolled: None. No students remaining for transfer past this date.

Authorization	Date:
Departmental Approval: N/A	N/A
Faculty/School Approval: N/A	N/A
Faculty Dean's Approval: Dr. Nicholas Krouglicof	October 24, 2018
Graduate Studies Dean's Approval: N/A	N/A
Registrar's Office Approval: Pam McGuigan	November 13, 2018
APCC Meeting Date Approval	December 20, 2018



CALENDAR & CURRICULUM CHANGE

Motion #9

Revision is for a: **Course Deletion**

Faculty/School/Department: **Sustainable Design Engineering**

Department/Program(s)/Academic Regulations: **Bachelor of Science in Sustainable Design Engineering**

MOTION: That ENGN 2820 (Electric Circuits II) be deleted.

<u>Reproduction of Current Calendar Entry</u>	<u>Proposed revision with changes underlined and deletions indicated clearly</u>
<p>2820 ELECTRIC CIRCUITS II This course is a continuation of Engineering 2810, expanding upon concepts introduced in the first course. This will include two port networks, Fourier series and Fourier transforms, Laplace transforms, Bode and Polar plots, and Filters. PREREQUISITE: Engineering 2810 Three hours lecture and two hours tutorial per week</p>	<p>2820 ELECTRIC CIRCUITS II This course is a continuation of Engineering 2810, expanding upon concepts introduced in the first course. This will include two port networks, Fourier series and Fourier transforms, Laplace transforms, Bode and Polar plots, and Filters. PREREQUISITE: Engineering 2810 Three hours lecture and two hours tutorial per week</p>

Rationale for Change: This course is being replaced by ENGN 2830 Digital Logic Design.

Effective Date: September 2020

Implications for Other Programs: None

Impact on Students Currently Enrolled: None

Authorization	Date:
Departmental Approval: N/A	N/A
Faculty/School Approval: N/A	N/A
Faculty Dean's Approval: Dr. Nicholas Krouglicof	October 24, 2018
Graduate Studies Dean's Approval: N/A	N/A
Registrar's Office Approval: Pam McGuigan	November 13, 2018
APCC Meeting Date Approval	December 20, 2018

CALENDAR & CURRICULUM CHANGE

Motion #10

Revision is for a: **Course Deletion**

Faculty/School/Department: **Sustainable Design Engineering**

Department/Program(s)/Academic Regulations: **Bachelor of Science in Sustainable Design Engineering**

MOTION: That ENGN 3850 (Engineering Applications of Numerical Methods) be deleted.

<u>Reproduction of Current Calendar Entry</u>	<u>Proposed revision with changes underlined and deletions indicated clearly</u>
<p>3850 ENGINEERING APPLICATIONS OF NUMERICAL METHODS</p> <p>This course focuses on the use of numerical techniques and engineering tools, including industrial statistical tools for the design of experiments (DOE), to solve complex real world engineering problems. Students are introduced to numerical algorithms with primary objective of the course to be development of the basic understanding of the construction of applicability and limits of these algorithms and their appropriate use. Recommended list of topics includes accuracy and efficiency of numerical approximation, root finding of nonlinear equations, interpolation and approximation, numerical differentiation, numerical integration and quadrature, Fourier Transform and its applications and solution of differential equations and boundary value problems. Extensive use of high level programming tools like MATLAB is expected.</p> <p>PREREQUISITES: Engineering 1310 and Math 3010 Three hours of lecture and three hours of lab per week</p>	<p>3850 ENGINEERING APPLICATIONS OF NUMERICAL METHODS</p> <p>This course focuses on the use of numerical techniques and engineering tools, including industrial statistical tools for the design of experiments (DOE), to solve complex real world engineering problems. Students are introduced to numerical algorithms with primary objective of the course to be development of the basic understanding of the construction of applicability and limits of these algorithms and their appropriate use. Recommended list of topics includes accuracy and efficiency of numerical approximation, root finding of nonlinear equations, interpolation and approximation, numerical differentiation, numerical integration and quadrature, Fourier Transform and its applications and solution of differential equations and boundary value problems. Extensive use of high level programming tools like MATLAB is expected.</p> <p>PREREQUISITES: Engineering 1310 and Math 3010 Three hours of lecture and three hours of lab per week</p>

Rationale for Change: This course is being replaced by ENGN 4850 Computational Methods for Engineering Design.

Effective Date: September 2019

Implications for Other Programs: None

Impact on Students Currently Enrolled: None

Authorization	Date:
Departmental Approval: N/A	N/A
Faculty/School Approval: N/A	N/A
Faculty Dean's Approval: Dr. Nicholas Krouglicof	October 24, 2018
Graduate Studies Dean's Approval: N/A	N/A
Registrar's Office Approval: Pam McGuigan	November 13, 2018
APCC Meeting Date Approval	December 20, 2018

NEW COURSE PROPOSAL

Motion #11

Faculty/School: **Sustainable Design Engineering**

Department/Program(s): **Bachelor of Science in Sustainable Design Engineering**

MOTION: That a new course entitled ENGN 1230 (Engineering Mechanics I: Statics) be approved as presented.

Course Number and Title	ENGN 1230 Engineering Mechanics I: Statics
Description	This course focuses on the equilibrium conditions for the state of rest of particles and rigid bodies subject to forces and moments. Topics to be discussed include vector operations, equilibrium conditions, free-body diagrams, moments and couples, distributed loadings, support reactions, truss analysis, centroids, moments of inertia, products of inertia, shear and bending moment diagrams, and friction.
Cross-Listing	N/A
Prerequisite/Co-Requisite	Admission to the Engineering Program. Math 1910 must be completed or taken concurrently.
Credit(s)	3
Notation	Three lecture hours and three lab hours per week

This is: A Core Course

Grade Mode: Numeric (Standard)

Anticipated Enrolment: 100

Is there an Enrolment Cap: No

Rationale for New Course: The content for this course is currently covered in ENGN 1220, as one of a number of components, and in PHYS 1110. This course is being created to allow the subject matter to be covered in a more substantial manner with a focus on engineering approaches and applications. The existing material in the ENGN 1220 course will be removed from it. PHYS 1110 will no longer be required.

Effective Date: September 2019

Implications for Other Programs: PHYS 1110 will no longer be a required course in the engineering program.

Impact on Students Currently Enrolled: Engineering students will no longer be required to take PHYS 1110.

Resources Required: Existing personnel and laboratory resources within the Faculty of Sustainable Design Engineering.

In offering this course will UPEI require facilities or staff at other institutions: No

Authorization

Date:

Departmental Approval: N/A	N/A
Faculty/School Approval: N/A	N/A
Faculty Dean's Approval: Dr. Nicholas Krouglicof	October 24, 2018
Graduate Studies Dean's Approval: N/A	N/A
Registrar's Office Approval: Pam McGuigan	November 13, 2018
APCC Meeting Date Approval	December 20, 2018



NEW COURSE PROPOSAL

Motion #11

LIBRARY RESOURCE REQUIREMENTS FOR A NEW COURSE PROPOSAL

ENGN 1230 Engineering Mechanics I: Statics

Library Resource Requirements (to be completed by the liaison and/or collections librarian)

Existing resources include:

- Collections - Holdings, Subscriptions, Other
 - An attached document lists selected resources from the Library's collection and beyond that may be of interest to the instructor. Also available at: tinyurl.com/engn1230-resources
 - Books
 - Keyword search
 - engineering statics: 721 books
 - "mechanics of materials": 62 books
 - Subject search
 - Statics: 91 books
 - Mechanics, Applied: 232 books
 -
 - Subscriptions
 - **Access Engineering** provides handbooks that contain the basic engineering concepts and equations for statics. They also present the material in the form of videos of working through example problems, and in the form of "spreadsheet calculators"
- Subscription Dependencies (in interdisciplinary packages)
 - Several texts on Statics appear in interdisciplinary book packages.
- Physical Space in Library (other than holdings, explain) - none
- Library Administrative/Research Support – The engineering subject librarian is available to assist students if needed.

New resources needed to support this proposal:

- Capital Requirements (other than new course-specific) - none
- Collections: - none
 - Monographs
 - Subscriptions
 - Databases
 - Other
- Physical Space in Library (other than holdings, explain) - none
- Library Administrative/Research Support - none
- Other One-Time or Ongoing Library expenses (e.g. software licenses) - none

Summary of additional budget allocation required:

- One-time: _____n/a_____ For each of _____ consecutive years
- Annual: _____n/a_____
 - Per-year percentage increase in annual: _____

NEW COURSE PROPOSAL

Motion #11

Does the budget allocation for library resources in this proposal meet the requirement?

The existing budget allocation for Engineering is sufficient at the moment, however the existing Engineering library budget does not increase with inflation or annual increases in subscription prices. We are exposed to further risk of exchange rate fluctuations as a large majority of our subscriptions are purchased in American Dollars. This makes existing resources (heavily subscription-based) unsustainable on a long-term basis, and core resources will soon have to be cut. As agreed in August 2017 (as part of the Interdisciplinary PhD in Engineering proposal), we still expect that when the original engineering undergraduate student enrollment target is met, we will see the sustainability of this budget addressed.

Date Received by Liaison/Collections Librarian	October 24, 2018
Name of Librarian to be Contacted for Questions	Rosie Le Faive
Approved by University Librarian or Designate - Name	Donald Moses
Date Approved by UL or Designate	November 7, 2018



NEW COURSE PROPOSAL

Motion #12

Faculty/School: **Sustainable Design Engineering**

Department/Program(s): **Bachelor of Science in Sustainable Design Engineering**

MOTION: To approve the new course ENGN 2130 (Statistics for Engineering Applications).

Course Number and Title	ENGN 2130 Statistics for Engineering Applications
Description	This course provides an introduction to statistics through its application to engineering in the areas of reliability and experimentation. Basic statistical concepts, such as probability, descriptive measures, population distributions, and hypothesis testing will be taught in the context of engineering reliability and experimentation scenarios. Students will be introduced to fundamental concepts of reliability, such as failure and repairability rates, and analysis techniques such as reliability block diagrams and fault tree analysis. Student will also learn the basics of experimental design, including one-factor-at-a-time and factorial testing, and get hands on experience with the design, execution, analysis and interpretation of experimental results.
Cross-Listing	N/A
Prerequisite/Co-Requisite	Mathematics 1920
Credit(s)	3
Notation	Three lecture hours and three lab hours per week

This is: A Core Course

Grade Mode: Numeric (Standard)

Anticipated Enrolment: 100

Is there an Enrolment Cap: No

Rationale for New Course: The creation of this new course will provide engineering students with an introductory course in statistics that focuses on engineering applications and an introduction to experimental design content, which is not covered in the existing STAT 1210. This course will replace the existing requirement for STAT 1210.

Effective Date: September 2019

Implications for Other Programs: STAT 1210 will no longer be a required course in the engineering program.

Impact on Students Currently Enrolled: Engineering students will no longer be required to take STAT 1210.

Resources Required: Existing personnel and laboratory resources within the Faculty of Sustainable Design Engineering.

In offering this course will UPEI require facilities or staff at other institutions: No

Authorization	Date:
Departmental Approval: N/A	N/A
Faculty/School Approval: N/A	N/A
Faculty Dean's Approval: Dr. Nicholas Krouglicof	October 24, 2018
Graduate Studies Dean's Approval: N/A	N/A
Registrar's Office Approval: Pam McGuigan	November 13, 2018
APCC Meeting Date Approval	December 20, 2018

NEW COURSE PROPOSAL

Motion #12

LIBRARY RESOURCE REQUIREMENTS FOR A NEW COURSE PROPOSAL

ENGN 2130 Statistics for Engineering Applications

Library Resource Requirements *(to be completed by the liaison and/or collections librarian)*

Existing resources:

- Collections
 - An attached document lists selected resources from the Library's collection and beyond that may be of interest to the instructor. Also available at: <https://tinyurl.com/engn2110-resources>
 - Books
 - Subject search 'Engineering Statistical methods': 131 books. 54 published after 2010.
 - Subject search 'Statistical analysis': 728 books. 236 published after 2010.
 - Engineering data processing; 194 published after 2010.
 - Subject search 'experimental design': 234 books, 66 published after 2010.
 - Keyword search 'engineering statistics': 1838 books. 734 after 2010.
 - Subscriptions
 - The **Wiley EBA**¹ program provides access to many relevant books through their Engineering and Math&Stats collections, which we 'subscribe' to.
 - **AccessEngineering** provides many classic engineering handbooks, and several are about or have chapters covering statistics. There are also some video tutorials available on the platform demonstrating working through problems.
- Subscription Dependencies (in interdisciplinary packages)
 - Interdisciplinary collections such as our Proquest and Ebscohost book subscriptions provide resources relating to the course material.
- Physical Space in Library (other than holdings, explain)
 - None needed.
- Library Administrative/Research Support
 - If any research assistance is needed, the Engineering subject librarian can assist.

New resources needed to support this proposal:

- Capital Requirements *(other than new course-specific)* - none
- Collections:
 - Monographs

¹ Evidence Based Acquisition: for an annual fee, we (the University) get unlimited access to the publisher's collection (often the full catalogue) then at the end of the year we "spend out" the deposit by purchasing titles that we (librarians) get to select, based on usage data.

NEW COURSE PROPOSAL

Motion #12

- Existing book collections are dated and could use a refresher. Existing resources are electronic and some are limited to a single user – more licenses may be desired.
 - Subscriptions
 - No new subscriptions needed.
 - Databases
 - no new resources needed.
 - Other
- Physical Space in Library (other than holdings, explain)
 - no new resources needed.
- Library Administrative/Research Support
 - no new resources needed.
- Other One-Time or Ongoing Library expenses (e.g. software licenses)
 - If there is statistical software that will be required for exercises or lab reports, which should be installed on Library public computers, please let the Library know. We may also want to provide additional resources such as manuals/tutorials for that software.

Summary of additional budget allocation required:

- One-time: _____n/a_____ For each of _____ consecutive years
- Annual: _____n/a_____
 - Per-year percentage increase in annual: _____

Does the budget allocation for library resources in this proposal meet the requirement?

The existing budget allocation for Engineering is sufficient at the moment, however the existing Engineering library budget does not increase with inflation or annual increases in subscription prices. We are exposed to further risk of exchange rate fluctuations as a large majority of our subscriptions are purchased in American Dollars. This makes existing resources (heavily subscription-based) unsustainable on a long-term basis, and core resources will soon have to be cut. As agreed in August 2017 (as part of the Interdisciplinary PhD in Engineering proposal), we still expect that when the original engineering undergraduate student enrollment target is met, we will see the sustainability of this budget addressed.

Date Received by Liaison/Collections Librarian	October 24, 2018
Name of Librarian to be Contacted for Questions	Rosemary Le Faive
Approved by University Librarian or Designate - Name	Donald Moses
Date Approved by UL or Designate	November 7, 2018

NEW COURSE PROPOSAL

Motion #13

Faculty/School: **Sustainable Design Engineering**

Department/Program(s): **Bachelor of Science in Sustainable Design Engineering**

MOTION: To approve the new course ENGN 2830 (Digital Logic Design).

Course Number and Title	ENGN 2830 DIGITAL LOGIC DESIGN
Description	This course is a study of topics such as: digital and binary systems, Boolean algebra, combinational logic, sequential logic, minimization, registers and counters, clocks and synchronization, state machines, and programmable logic devices. Ladder logic and programmable logic controllers are also introduced.
Cross-Listing	N/A
Prerequisite/Co-Requisite	Engineering 1310, Engineering 2810
Credit(s)	3
Notation	Three lecture hours and three lab hours per week

This is: A Core Course

Grade Mode: Numeric (Standard)

Anticipated Enrolment: 100 **Is there an Enrolment Cap:** No

If there is an enrolment limit, please explain.

Rationale for New Course: This new course provides new content that better positions students for subsequent courses in the mechatronics focus area.

Effective Date: September 2019

Implications for Other Programs: None

Impact on Students Currently Enrolled: None

Resources Required: Existing personnel and laboratory resources within the Faculty of Sustainable Design Engineering.

In offering this course will UPEI require facilities or staff at other institutions: No

<u>Authorization</u>	<u>Date:</u>
Departmental Approval: N/A	N/A
Faculty/School Approval: N/A	N/A
Faculty Dean's Approval: Dr. Nicholas Krouglicof	October 24, 2018
Graduate Studies Dean's Approval: N/A	N/A
Registrar's Office Approval: Pam McGuigan	November 13, 2018
APCC Meeting Date Approval	December 20, 2018

NEW COURSE PROPOSAL

Motion #13

LIBRARY RESOURCE REQUIREMENTS FOR A NEW COURSE PROPOSAL

ENGN 2830 Digital Logic Design

Library Resource Requirements (*to be completed by the liaison and/or collections librarian*)

Existing resources:

- Collections
 - An attached document lists selected resources from the Library's collection and beyond that may be of interest to the instructor. Also available at: <https://tinyurl.com/engn2830-resources>.
 - Books
 - A keyword search for digital logic design brings back 414 books, 118 of them published after 2010.
 - A subject search for "logic design" found 381 books, 25 of them published after 2010.
 - Subject search "Digital electronics" found 130 books, 36 published after 2010.
 - Subject search Integrated circuits > Design and construction found 278 books, 104 published after 2010.
 - Subscriptions
 - IEEE Digital Library supports this program by providing access to over 200 journals, 1400 proceedings, and over 2800 IEEE standards.
 - ACM Digital Library supports this course by providing the full text of all ACM publications (journals, conference proceedings, technical magazines, newsletters, and books).
 - Subscription to AccessEngineering provides McGraw-Hill's handbooks in an interactive format, with videos and calculators available.
 - Wiley EBA² package for Engineering provides several recent introductory-level texts.
 - Databases
 - Compendex and INSPEC provide indexing and coverage of engineering with INSPEC having a stronger focus on electrical engineering, electronics, computing, and control.
- Subscription Dependencies (in interdisciplinary packages)
 - Wiley, ScienceDirect, and other interdisciplinary packages like Academic Search Complete provide additional access to journals.
 - Book subscription packages through Proquest and EBSCO provide additional monographs.
- Physical Space in Library (other than holdings, explain)
 - none is required.
- Library Administrative/Research Support
 - The subject librarian for Engineering can provide research assistance as needed.

New resources needed to support this proposal:

- Capital Requirements (*other than new course-specific*)

² Evidence Based Acquisition: for an annual fee, we (the University) get unlimited access to the publisher's collection (often the full catalogue) then at the end of the year we "spend out" the deposit by purchasing titles that we (librarians) get to select, based on usage data.



NEW COURSE PROPOSAL

Motion #13

- o none
- Collections:
 - o Monographs
 - The collection of monographs is dated and needs to be refreshed. Recent introductory-level works will be sought.
 - o Subscriptions
 - Additional subscriptions may be needed if this course had a research focus, but as an introductory course the existing subscriptions suffice.
 - o Databases
 - no new resources needed.
 - o Other
- Physical Space in Library (other than holdings, explain)
 - no new resources needed.
- Library Administrative/Research Support
 - no new resources needed.
- Other One-Time or Ongoing Library expenses (e.g. software licenses)
 - o None (the library will not be providing licences to design software. If a software (such as Quartus or ModelSIM) has been selected to use for this course, please let us know if it needs to be installed on Library computers. Additional resources such as manuals/tutorials for that specific software may also be desired)

Summary of additional budget allocation required:

- One-time: _____n/a_____ For each of _____ consecutive years
- Annual: _____n/a_____
 - o Per-year percentage increase in annual: _____

Does the budget allocation for library resources in this proposal meet the requirement?

The existing budget allocation for Engineering is sufficient at the moment, however the existing Engineering library budget does not increase with inflation or annual increases in subscription prices. We are exposed to further risk of exchange rate fluctuations as a large majority of our subscriptions are purchased in American Dollars. This makes existing resources (heavily subscription-based) unsustainable on a long-term basis, and core resources will soon have to be cut. As agreed in August 2017 (as part of the Interdisciplinary PhD in Engineering proposal), we still expect that when the original engineering undergraduate student enrollment target is met, we will see the sustainability of this budget addressed.

Date Received by Liaison/Collections Librarian	October 24, 2018
Name of Librarian to be Contacted for Questions	Rosemary Le Faive
Approved by University Librarian or Designate - Name	Donald Moses
Date Approved by UL or Designate	November 7, 2018

NEW COURSE PROPOSAL

Motion #14

Faculty/School: **Sustainable Design Engineering**

Department/Program(s): **Bachelor of Science in Sustainable Design Engineering**

MOTION: To approve the new course ENGN 4830 (Biomedical Signal Processing).

Course Number and Title	ENGN 4830 Biomedical Signal Processing
Description	This course is an introduction to the basics of viewing, processing, and analyzing of biosignals, or signals originating from living beings. Biosignals may be characterized as bioelectrical signals which can be composed of both electrical and non-electrical parts. Topics include both linear and nonlinear systems, signal conditioning or filtering, improving signal quality (signal-to-noise ratio) through averaging techniques, and signal representations in both the time and frequency domains.
Cross-Listing	N/A
Prerequisite/Co-Requisite	Engineering 3220
Credit(s)	3
Notation	Three lecture hours and three lab hours per week

This is: An Elective Course

Grade Mode: Numeric (Standard)

Anticipated Enrolment: 30

Is there an Enrolment Cap: No

Rationale for New Course: Provides additional elective course offering.

Effective Date: September 2019

Implications for Other Programs: None

Impact on Students Currently Enrolled: None

Resources Required: Existing personnel and laboratory resources within the Faculty of Sustainable Design Engineering.

In offering this course will UPEI require facilities or staff at other institutions: No

<i>Authorization</i>	<i>Date:</i>
Departmental Approval: N/A	N/A
Faculty/School Approval: N/A	N/A
Faculty Dean's Approval: Dr. Nicholas Krouglicof	October 24, 2018
Graduate Studies Dean's Approval: N/A	N/A
Registrar's Office Approval: Pam McGuigan	November 13, 2018
APCC Meeting Date Approval	December 20, 2018

NEW COURSE PROPOSAL

Motion #14

LIBRARY RESOURCE REQUIREMENTS FOR A NEW COURSE PROPOSAL

ENGN 4830 (Biomedical Signal Processing)

Library Resource Requirements (*to be completed by the liaison and/or collections librarian*)

Existing resources:

- Collections:
 - An attached document lists selected resources from the Library's collection and beyond that may be of interest to the instructor. Also available at: <http://tinyurl.com/engn4830-resources>.
 - Books
 - Keyword search: Biomedical signal: 331 books
 - Keyword search: biosignal: 24 books.
 - See attached document for selected introductory monographs. However, all but one are over 5 years old.
 - Subscriptions
 - Signal processing is very strongly supported by the IEEE/IEL Digital Library, which includes all journals and proceedings from the IEEE and other partner organizations.
 - Databases
 - Compendex and Inspec provide engineering-focused indexing of literature including books, articles, and proceedings.
- Subscription Dependencies (in interdisciplinary packages)
 - While not a subscription per se, the DDA deposit account with Proquest provides access to over 1000 titles in Springer's book series including "Lecture Notes in Computer Science". However, the contents of this DDA collection may change.
 - Our subscriptions to SpringerLink, ScienceDirect, and Wiley also provide relevant journal titles relating to biomedical engineering.
- Physical Space in Library (other than holdings, explain)
 - none is required.
- Library Administrative/Research Support
 - The subject librarian for Engineering can provide research assistance as needed.

New resources needed to support this proposal:

- Capital Requirements (*other than new course-specific*)
- Collections:
 - Monographs
 - Full access to more Springer series would be an asset
 - More recent monographs on the topic would be an asset.
 - Subscriptions
 - Proceedings of the SPIE

NEW COURSE PROPOSAL

Motion #14

- World Scientific journals such as Journal of Mechanics in Medicine and Biology, and Biomedical Engineering – Applications, Basis and Communications.
 - Databases
 - none
 - Other
 - none
- Physical Space in Library (other than holdings, explain)
 - no space is needed.
- Library Administrative/Research Support
 - no new support is needed
- Other One-Time or Ongoing Library expenses (e.g. software licenses)
 - none required.

Summary of additional budget allocation required:

- One-time: _____ n/a _____ For each of _____ consecutive years
- Annual: _____ n/a _____
 - Per-year percentage increase in annual: _____

Does the budget allocation for library resources in this proposal meet the requirement?

The existing budget allocation for Engineering is sufficient at the moment, however the existing Engineering library budget does not increase with inflation or annual increases in subscription prices. We are exposed to further risk of exchange rate fluctuations as a large majority of our subscriptions are purchased in American Dollars. This makes existing resources (heavily subscription-based) unsustainable on a long-term basis, and core resources will soon have to be cut. As agreed in August 2017 (as part of the Interdisciplinary PhD in Engineering proposal), we still expect that when the original engineering undergraduate student enrollment target is met, we will see the sustainability of this budget addressed.

Date Received by Liaison/Collections Librarian	October 24, 2018
Name of Librarian to be Contacted for Questions	Rosemary Le Faive
Approved by University Librarian or Designate - Name	Donald Moses
Date Approved by UL or Designate	November 7, 2018

NEW COURSE PROPOSAL

Motion #15

Faculty/School: **Sustainable Design Engineering**

Department/Program(s): **Bachelor of Science in Sustainable Design Engineering**

MOTION: To approve the new course ENGN 4850 (Computational Methods for Engineering Design).

Course Number and Title	ENGN 4850 Computational Methods for Engineering Design
Description	This course covers the numerical methods that form the basis of many engineering techniques and applies these methods to quantitative engineering design. The fundamentals of numerical approaches are reviewed, including iteration, approximation, and numerical errors. Methods are presented for numerical integration, differentiation, and nonlinear equation solving. Numerical approaches to solving differential equations are examined and their applications to numerical modelling, including finite-element analysis and computation fluid dynamics, are explored. Computational approaches to frequency-domain analysis using discrete Fourier transforms are introduced, along with related topics such as digital filtering and numerical convolution. Algorithms are presented for array and matrix computation, solving systems of equations, regression, curve fitting, and numerical optimization. Finally, these computational techniques are brought to bear on the topic of design optimization, emphasizing the transformation of real-world engineering design problems into quantitative formulations to which computational design optimization techniques can be applied.
Cross-Listing	N/A
Prerequisite/Co-Requisite	Engineering 1310 and Mathematics 3010
Credit(s)	3
Notation	Three lecture hours and three lab hours per week

This is: A Core Course

Grade Mode: Numeric (Standard)

Anticipated Enrolment: 30

Is there an Enrolment Cap: No

Rationale for New Course: This new course provides content relevant to modelling and simulation which supports the Year 4 design courses. It replaces ENGN 3850 (Engineering Applications of Numerical Methods).

Effective Date: September 2019

Implications for Other Programs: None

Impact on Students Currently Enrolled: None

Resources Required: Existing personnel and laboratory resources within the Faculty of Sustainable Design Engineering.

In offering this course will UPEI require facilities or staff at other institutions: No

Authorization	Date:
Departmental Approval: N/A	N/A
Faculty/School Approval: N/A	N/A
Faculty Dean's Approval: Dr. Nicholas Krouglicof	October 24, 2018
Graduate Studies Dean's Approval: N/A	N/A
Registrar's Office Approval: Pam McGuigan	November 13, 2018
APCC Meeting Date Approval	December 20, 2018

NEW COURSE PROPOSAL

Motion #15

LIBRARY RESOURCE REQUIREMENTS FOR A NEW COURSE PROPOSAL

ENGN 4850 (Computational Methods for Engineering Design)

Library Resource Requirements (*to be completed by the liaison and/or collections librarian*)

Existing resources:

- Collections
 - A list of selected resources for this course was not prepared due to time constraints, and can be requested by the instructor if desired.
 - Books
 - Book Collections:
 - AccessEngineering
 - “ENGnetBASE” from Taylor & Francis / CRC
 - Subject searches
 - Engineering mathematics: 1551 books. (incl 1444 e-books)
 - Engineering design > Mathematical models: 33 books
 - Mathematical optimization: 712 books
 - Engineering > Computer simulation: 217 books
 - Numerical analysis: 593 books
 - Differential equations > Numerical solutions: 254 books
 - Differential equations, Partial > Numerical solutions: 100 books
 - Finite element method: 242 books
 - Keyword searches
 - “Numerical methods”: 828 books
 - “Numerical methods” engineering: 403 books
 - “Numerical methods” design: 176 books
 - “finite element method”: 484 books
 - “computational fluid dynamics”: 203 books
 - *Within Full Text book databases*
 - *AccessEngineering: 1215 results for “numerical methods”*
 - *EBSCOhost books: 5027 results for “numerical methods”*
 - *Wiley: 75,238 results for “numerical methods”*
 - *Proquest: 7029 results for “numerical methods”*
 - *Taylor & Francis: 95 results for “numerical methods”*
 - *ASME books & Journals: 78 ebook matches for “numerical methods”*
 - Journals and Databases
 - Title search
 - “Numerical methods” 18 journals
 - “Engineering” and “optimization”: 11 journals
 - “engineering” and “math*”: 90 journals

NEW COURSE PROPOSAL

Motion #15

- o Open Textbooks and Courses
 - ["Introduction to Numerical Analysis"](#), MIT OpenCourseware, 2012
 - Masenge, R.W.P. [Numerical methods](#). African Virtual University.
 - ["Introduction to Linear Dynamical Systems"](#), Stanford Engineering Everywhere
 - ["The Fourier Transform and its Applications"](#). Stanford Engineering Everywhere
- Subscription Dependencies (in interdisciplinary packages)
 - o EBSCOhost, Proquest, Wiley, and Taylor & Francis are our largest sources of e-books, and these include some Engineering titles.
- Physical Space in Library (other than holdings, explain)
 - o no resources needed.
- Library Administrative/Research Support
 - o The Engineering subject librarian can provide research support as needed.

New resources needed to support this proposal:

- Capital Requirements (*other than new course-specific*) - none
- Collections:
 - o Monographs -
 - o Subscriptions
 - o Databases
 - o Other
- Physical Space in Library (other than holdings, explain)
- Library Administrative/Research Support
- Other One-Time or Ongoing Library expenses (e.g. software licenses)
 - o None (the library will not be providing licences to computational software. If there is software that will be required for exercises/labs, which should be installed on Library public computers, please let the Library know. We may also want to provide additional resources such as manuals/tutorials for that software.)

Summary of additional budget allocation required:

- One-time: _____n/a_____ For each of _____ consecutive years
- Annual: _____n/a_____
 - o Per-year percentage increase in annual: _____

Does the budget allocation for library resources in this proposal meet the requirement?

The existing budget allocation for Engineering is sufficient at the moment, however the existing Engineering library budget does not increase with inflation or annual increases in subscription prices. We are exposed to further risk of exchange rate fluctuations as a large majority of our subscriptions are purchased in American Dollars. This makes existing resources (heavily subscription-based) unsustainable on a long-term basis, and core resources will soon have to be cut. As agreed in August 2017 (as part of the Interdisciplinary PhD in Engineering proposal), we still expect that when the original engineering undergraduate student enrollment target is met, we will see the sustainability of this budget addressed.

Date Received by Liaison/Collections Librarian	October 24, 2018
Name of Librarian to be Contacted for Questions	Rosemary Le Faive
Approved by University Librarian or Designate - Name	Donald Moses
Date Approved by UL or Designate	November 7, 2018

CALENDAR & CURRICULUM CHANGE

Motion #16

Revision is for a: **Calendar Entry Change**

Faculty/School/Department: **Sustainable Design Engineering**

Department/Program(s)/Academic Regulations: **Bachelor of Science Sustainable Design Engineering**

MOTION: To approve the proposed changes for ENGN 1210 (Engineering Communications).

<u>Reproduction of Current Calendar Entry</u>	<u>Proposed revision with changes underlined and deletions indicated clearly</u>
<p>1210 ENGINEERING COMMUNICATIONS This course is a basic introduction to the profession, to the design process, and to the way that engineers communicate through drawing, writing and speaking. The course stresses the importance of creativity and social responsibility in engineering. Topics include basic engineering concepts, simple engineering design projects, presentation of graphical material for engineering designs, and technical reporting, which includes verbal, written, and graphical means. There is an emphasis on group work in engineering. PREREQUISITE: Admission to the Engineering Program. Math 1910 and Physics 1110 must be completed or taken concurrently Three hours lecture and three hours laboratory per week</p>	<p>1210 ENGINEERING COMMUNICATIONS This course is <u>the first in a series of design courses structured to foster development toward becoming a professional engineer.</u> It provides is a basic introduction to the profession, to the design process, and to the way that engineers communicate through drawing, writing, <u>and speaking, and presenting.</u> The course stresses the importance of creativity and social responsibility in engineering. <u>Students learn about the engineering design process by completing simple engineering design projects in a team-based environment. There is a strong focus on writing and computer-aided drawing.</u> Topics include basic engineering concepts, simple engineering design projects, presentation of graphical material for engineering designs, and technical reporting, which includes verbal, written, and graphical means. There is an emphasis on group work in engineering. PREREQUISITE: Admission to the Engineering Program. <u>Engineering 1410 and Math 1910</u> and Physics 1110 must <u>both</u> be completed or taken concurrently Three hours lecture and three hours <u>laboratory design studio</u> per week</p>

Rationale for Change: To more accurately reflect the existing course content. The change in wording from “lab” to “design studio” reflects the actual purpose of the scheduled hours. The pre-requisite change is due to Physics 1110 no longer being required for students in the Bachelor of Sustainable Design Engineering program.

Effective Date: September 2019

Implications for Other Programs: None

Impact on Students Currently Enrolled: None

Authorization	Date:
Departmental Approval: N/A	N/A
Faculty/School Approval: N/A	N/A
Faculty Dean’s Approval: Dr. Nicholas Krouglicof	October 24, 2018
Graduate Studies Dean’s Approval: N/A	N/A
Registrar’s Office Approval: Pam McGuigan	November 13, 2018
APCC Meeting Date Approval	December 20, 2018

CALENDAR & CURRICULUM CHANGE

Motion #17

Revision is for a: **Calendar Entry Change**

Faculty/School/Department: **Sustainable Design Engineering**

Department/Program(s)/Academic Regulations: **Bachelor of Science in Sustainable Design Engineering**

MOTION: To approve the proposed changes for ENGN 1220 (Engineering Analysis).

<u>Reproduction of Current Calendar Entry</u>	<u>Proposed revision with changes underlined and deletions indicated clearly</u>
<p>1220 ENGINEERING ANALYSIS This course is a continuation of the design process and engineering professionalism introduced in Engineering 1210. Emphasis is placed on the development of a structured problem solving capability that can be generally applied in most industrial environments. As with all UPEI design courses, the content is delivered primarily through facilitated exercises and a project based learning environment. Students are expected to be self-directed and are required to analyze situations in a systematic and scientific manner. In order to perform engineering analysis, a basic understanding of math and engineering science (i.e. statics, strength of materials, material science, material balance, fluid mechanics, thermodynamics, circuits, measurements, etc.) is required and an overview of these areas is provided. Students are also expected to integrate the knowledge and skills from other engineering science, math and general science courses. Computer aided tools introduced include Microsoft Excel, DataStudio, MatLab and Simulink. Demonstration of design concepts during end of year industry expo is required. PREREQUISITE: Engineering 1210 with a grade of at least 60%. Engineering 1310 must be completed or taken concurrently. Three hours lecture and three hours of lab per week</p>	<p>1220 ENGINEERING ANALYSIS This course is <u>the second in a series of design courses structured to foster development toward becoming a professional engineer.</u> a continuation of the design process and engineering professionalism introduced in Engineering 1210. <u>It further introduces the engineering design process through team-based engineering design projects.</u> Additionally, <u>Emphasis is placed on the development of a structured problem-solving and analysis ability that can be applied to most engineering applications.</u> capability that can be generally applied in most industrial environments. As with all UPEI design courses, the content is delivered primarily through facilitated exercises and a project based learning environment. Students are expected to be self directed and are required to analyze situations in a systematic and scientific manner. In order to perform engineering analysis, a basic understanding of math and engineering science (i.e. statics, strength of materials, material science, material balance, fluid mechanics, thermodynamics, circuits, measurements, etc.) is required and an overview of these areas is provided. <u>Analysis topics include: basic concepts of electricity; estimation; statistics; graphing; and regression.</u> Students are also expected to integrate the knowledge and skills from other engineering science, math and general science courses. Computer-aided tools, such as Microsoft Excel, DataStudio, and MatLab are introduced, and Simulink. Demonstration of design concepts during end of year industry expo is required. PREREQUISITE: Engineering 1210 with a grade of at least 60%. Engineering 1310 must be completed or taken concurrently. Three hours lecture and three hours of lab <u>design studio</u> per week</p>

Rationale for Change: To more accurately reflect the existing course content. The change in wording from “lab” to “design studio” reflects the actual purpose of the scheduled hours.



CALENDAR & CURRICULUM CHANGE

Motion #17

Effective Date: September 2019

Implications for Other Programs: None

Impact on Students Currently Enrolled: None

Authorization	Date:
Departmental Approval: N/A	N/A
Faculty/School Approval: N/A	N/A
Faculty Dean's Approval: Dr. Nicholas Krouglicof	October 24, 2018
Graduate Studies Dean's Approval: N/A	N/A
Registrar's Office Approval: Pam McGuigan	November 13, 2018
APCC Meeting Date Approval	December 20, 2018

CALENDAR & CURRICULUM CHANGE

Motion #18

Revision is for a: **Calendar Entry Change**

Faculty/School/Department: **Sustainable Design Engineering**

Department/Program(s)/Academic Regulations: **Bachelor of Science Sustainable Design Engineering**

MOTION: To approve the proposed changes for ENGN 2250 (Materials Science).

<u>Reproduction of Current Calendar Entry</u>	<u>Proposed revision with changes underlined and deletions indicated clearly</u>
<p>2250 MATERIALS SCIENCE This course is an introduction to the properties and behaviour of engineering materials. Topics include atomic structure and bonding, crystalline structures, deformation, metallic structures, hardening and annealing, phase diagrams, ceramics, polymers, composites, electrical and optical properties. Computer applications are used. PREREQUISITE: Chemistry 1110 and Math 1920 Three hours lecture and three hours lab per week</p>	<p><u>2250</u> 1250 MATERIALS SCIENCE This course is an introduction <u>focuses on the fundamental principles of chemistry as they relate</u> to the properties and behaviour of <u>engineering materials in application to engineering systems</u>. Topics include atomic structure and bonding, crystalline structures, deformation, metallic structures, hardening and annealing, phase diagrams, ceramics, polymers, composites, electrical and optical properties. Computer applications are used. <u>The relationship between electronic structure, chemical bonding, and atomic order is emphasized. The characterization of atomic arrangements in crystalline and amorphous solids, i.e. that of metals, ceramics, polymers, and composites are introduced. Knowledge of materials phenomena, including chemical equilibrium and kinetics, diffusion, electrochemistry, and phase transformations will be gained through experiential labs and lecture. Examples from industrial practice and emerging technologies will be used to illustrate the materials science concepts in this course.</u> PREREQUISITE: Chemistry 1110 and Mathematics 1920 <u>must be completed or taken concurrently. Chemistry 1110</u> Three hours lecture and three hours lab per week</p>

Rationale for Change: This course is being renumbered as a result of being moved to the first year of the BSc Sustainable Design Engineering Program. The course description is being updated to more accurately reflect the course content and to include those CHEM 1120 topics which are specifically relevant to engineering. CHEM 1120 is being removed as a program requirement. The change in the pre-requisite is due to the course being moved into the first year of the program.

Effective Date: September 2019 **Implications for Other Programs:** CHEM 1120 will no longer be a required course in the engineering program.

Impact on Students Currently Enrolled: Engineering students will no longer be required to take CHEM 1120.

Authorization	Date:
Departmental Approval: N/A	N/A
Faculty/School Approval: N/A	N/A
Faculty Dean's Approval: Dr. Nicholas Krouglicof	October 24, 2018
Graduate Studies Dean's Approval: N/A	N/A
Registrar's Office Approval: Pam McGuigan	November 13, 2018
APCC Meeting Date Approval	December 20, 2018

CALENDAR & CURRICULUM CHANGE

Motion #19

Revision is for a: **Course Description Change**

Faculty/School/Department: **Sustainable Design Engineering**

Department/Program(s)/Academic Regulations: **Bachelor of Science Sustainable Design Engineering**

MOTION: To approve the proposed changes for ENGN 1310 (Computer Programming with Engineering Applications).

<u>Reproduction of Current Calendar Entry</u>	<u>Proposed revision with changes underlined and deletions indicated clearly</u>
<p>1310 (formerly 1320) COMPUTER PROGRAMMING WITH ENGINEERING APPLICATIONS This course is a study of computer programming as it relates to engineering. Topics include problem solving, algorithm design, software standards, operating systems, computer components, data types, control structures, repetition, loops, nested structures, modular programming and arrays. Several programming languages and programs are used including MS Excel, Matlab and C. PREREQUISITE: Admission to the Engineering Program Three lecture hours and two lab hours per week</p>	<p>1310 (formerly 1320) COMPUTER PROGRAMMING WITH ENGINEERING APPLICATIONS This <u>introductory</u> course is a study of in computer programming <u>as it relates to engineering is specifically designed for engineering students with no previous programming experience.</u> <u>The learning objectives are twofold: 1) to gain the ability to write scripts and solve basic engineering problems using the Matlab® numerical computing environment, 2) to introduce embedded systems and the fundamentals of interfacing and real-time programming using the Arduino open-source platform.</u> Topics include problem solving, algorithm design, software standards, operating systems, computer components, data types, control structures, repetition, loops, nested structures, modular programming, <u>data types and number systems, operators, functions, decision statements, loops, and arrays.</u> <u>The latter part of the course deals with the fundamentals of interfacing peripheral devices including sensors and actuators to design small embedded systems, and arrays.</u> Several programming languages and programs are used including MS Excel, Matlab and C. PREREQUISITE: Admission to the Engineering Program Three lecture hours and two <u>three</u> lab hours per week</p>

Rationale for Change: To more accurately reflect the course content and the manner in which the lab is operated.

Effective Date: September 2019

Implications for Other Programs: None

Impact on Students Currently Enrolled: None

Authorization	Date:
Departmental Approval: N/A	N/A
Faculty/School Approval: N/A	N/A
Faculty Dean's Approval: Dr. Nicholas Krouglicof	October 24, 2018
Graduate Studies Dean's Approval: N/A	N/A
Registrar's Office Approval: Pam McGuigan	November 13, 2018
APCC Meeting Date Approval	December 20, 2018



CALENDAR & CURRICULUM CHANGE

Motion #20

Revision is for a: **Calendar Entry Change**

Faculty/School/Department: **Sustainable Design Engineering**

Department/Program(s)/Academic Regulations: **Bachelor of Science Sustainable Design Engineering**

MOTION: To approve the proposed changes for ENGN 2340 (Engineering Dynamics).

<u>Reproduction of Current Calendar Entry</u>	<u>Proposed revision with changes underlined and deletions indicated clearly</u>
<p>2340 ENGINEERING DYNAMICS This course is a study of mechanics concerned with the state of motion of rigid bodies that are subject to the action of forces. The course considers the kinematics and kinetics of motion applied particles and rigid bodies particularly as it relates to engineering applications and design. Topics include rectilinear and curvilinear motions, normal and tangential coordinates, dependent motion, Newton’s Laws of Motion, energy and momentum methods. PREREQUISITE: Engineering 1220 and Math 1920 Three hours lecture and three hours lab per week</p>	<p>2340 <u>1340</u> ENGINEERING <u>MECHANICS II: DYNAMICS</u> This course is a study of mechanics concerned with the state of motion of rigid bodies that are subject to the action of forces. The course considers the kinematics and kinetics of motion applied to particles and rigid bodies particularly as they relate to engineering applications and design. Topics include rectilinear and curvilinear motions, normal and tangential coordinates, dependent motion, Newton’s Laws of Motion, energy and momentum methods. PREREQUISITE: Engineering 1220 <u>Mathematics 1920</u> <u>must be completed or taken concurrently. Engineering 1230</u> Three hours lecture and three hours lab per week</p>

Rationale for Change: This course is being renumbered as a result of being moved to the first year of the BSc Sustainable Design Engineering Program. The change in the pre-requisite reflects the addition of the new course Engineering 1230 which is the appropriate prerequisite for this course.

Effective Date: September 2019

Implications for Other Programs: None

Impact on Students Currently Enrolled: As this course is being moved from Year 2 to Year 1, students currently enrolled in Year 1 will need to be able to take it in their Year 2. To facilitate this, the new prerequisites will need to be waived for these students.

Authorization	Date:
Departmental Approval: N/A	N/A
Faculty/School Approval: N/A	N/A
Faculty Dean’s Approval: Dr. Nicholas Krouglicof	October 24, 2018
Graduate Studies Dean’s Approval: N/A	N/A
Registrar’s Office Approval: Pam McGuigan	November 13, 2018
APCC Meeting Date Approval	December 20, 2018

CALENDAR & CURRICULUM CHANGE

Motion #21

Revision is for a: **Calendar Entry Change**

Faculty/School/Department: **Sustainable Design Engineering**

Department/Program(s)/Academic Regulations: **Bachelor of Science Sustainable Design Engineering**

MOTION: To approve the proposed changes for ENGN 2210 (Engineering Projects I).

<u>Reproduction of Current Calendar Entry</u>	<u>Proposed revision with changes underlined and deletions indicated clearly</u>
<p>2210 ENGINEERING PROJECTS I This course is the first in a two-course sequence, which provides a complete community design experience. In 2210, students go through a self-selecting team and project based process in response to request for proposals prepared by community partners. Students are required to research and analyze the client’s situation (internal/external) and develop detailed analytical proposals and conceptual design options for their community partner. Concepts are developed into detailed designs and prototypes in Engineering 222. End of term client presentation are used as hold points and to provide focus and direction for the second term. PREREQUISITE: Engineering 1220 with a grade of at least 60% Three hours lecture and three hours lab per week</p>	<p>2210 ENGINEERING PROJECTS I This course is the first in a two-course sequence, which <u>Combined with Engineering 2220, this course</u> provides a complete community/<u>industry</u> design <u>project</u> experience. In 2210, students go through a self-selecting team and project based process in response to request for proposals prepared by community partners. <u>Emphasis is placed on strong technical design knowledge and team dynamics to facilitate learning and critical thinking.</u> Students are encouraged to <u>develop and apply CAD, economics, sustainability, social justice, and ethics concepts in their own community/industry design projects.</u> Students are required to research and analyze the client’s situation (internal/external) and develop detailed analytical proposals and conceptual design options for their community partner. <u>Innovative project management tools and communication skills (team/client) are also introduced to achieve project deliverables in an effective manner.</u> Concepts are developed into detailed designs and prototypes in Engineering 222. End of term client presentation are used as hold points and to provide focus and direction for the second term. PREREQUISITE: Engineering 1220 with a grade of at least 60%. <u>Engineering 2310, Engineering 2610 and Engineering 2810 must be completed or taken concurrently and UPEI 1010</u> Three hours lecture and three hours lab <u>design studio</u> per week</p>

Rationale for Change: To more accurately reflect the course content. The change in wording from “lab” to “design studio” reflects the actual purpose of the scheduled hours.

Effective Date: September 2019

Implications for Other Programs: None

Impact on Students Currently Enrolled: None

Authorization

Date:

Departmental Approval: N/A	N/A
Faculty/School Approval: N/A	N/A
Faculty Dean’s Approval: Dr. Nicholas Krouglicof	October 24, 2018
Graduate Studies Dean’s Approval: N/A	N/A
Registrar’s Office Approval: Pam McGuigan	November 13, 2018
APCC Meeting Date Approval	December 20, 2018

CALENDAR & CURRICULUM CHANGE

Motion #22

Revision is for a: **Calendar Entry Change**

Faculty/School/Department: **Sustainable Design Engineering**

Department/Program(s)/Academic Regulations: **Bachelor of Science Sustainable Design Engineering**

MOTION: To approve the proposed changes for ENGN 2220 (Engineering Projects II).

<u>Reproduction of Current Calendar Entry</u>	<u>Proposed revision with changes underlined and deletions indicated clearly</u>
<p>2220 ENGINEERING PROJECTS II A continuation of Engineering 2210, students will complete detailed paper designs of their concepts, in-depth engineering analysis, as well as develop a physical model or demonstration to support the recommended design solution. Working closely with community partners and faculty, students will learn how to manage a complex client oriented project, supported by accurate numerical analysis and professional documentation. Client interaction and presentations occur at selected hold points and demonstration of concept at a public industry expo is required. PREREQUISITE: Engineering 2210 with a grade of at least 60% Three hours of lecture and three hours of lab per week</p>	<p>2220 ENGINEERING PROJECTS II A continuation of Building on the work in Engineering 2210, students will complete detailed paper designs of their concepts, in-depth engineering analysis <u>analyses</u>, as well as and develop a physical model or demonstration to support the recommended design solution. Working closely with community/<u>industry</u> partners and faculty, students will learn how to manage a complex client oriented project, supported by accurate numerical analysis and professional documentation. Client interaction and presentations occur at selected hold points and demonstration of concept at a public industry expo is required. <u>Emphasis is placed on hands-on activities in a team-oriented environment to achieve an optimal working prototype, keeping in view the concepts of practicality, adoptability, economics and sustainability.</u> PREREQUISITE: Engineering 2210 with a grade of at least 60% Three hours of lecture and three hours of lab <u>design studio</u> per week</p>

Rationale for Change: To more accurately reflect the existing course content. The change in wording from “lab” to “design studio” reflects the actual purpose of the scheduled hours.

Effective Date: September 2019

Implications for Other Programs: None

Impact on Students Currently Enrolled: None

Authorization	Date:
Departmental Approval: N/A	N/A
Faculty/School Approval: N/A	N/A
Faculty Dean’s Approval: Dr. Nicholas Krouglicof	October 24, 2018
Graduate Studies Dean’s Approval: N/A	N/A
Registrar’s Office Approval: Pam McGuigan	November 13, 2018
APCC Meeting Date Approval	December 20, 2018

CALENDAR & CURRICULUM CHANGE

Motion #23

Revision is for a: **Pre-requisite Addition/Change**

Faculty/School/Department: **Sustainable Design Engineering**

Department/Program(s)/Academic Regulations: **Bachelor of Science in Sustainable Design Engineering**

MOTION: To have the change in prerequisite for ENGN 2310 (Strength of Materials) be approved as proposed.

<u>Reproduction of Current Calendar Entry</u>	<u>Proposed revision with changes underlined and deletions indicated clearly</u>
ENGN 2310 Strength of Materials PREREQUISITE: Engineering 1220 and Math 1920	ENGN 2310 Strength of Materials PREREQUISITE: Engineering 1220 <u>1230</u> and <u>Mathematics</u> 1920.

Rationale for Change: The change in the pre-requisite is due to the new course offering of Engineering 1230 being more closely related in applicable content.

Effective Date: September 2019

Implications for Other Programs: None

Impact on Students Currently Enrolled: The ENGN 1230 prerequisite will need to be waived for students with the existing ENGN 1220 course.

Authorization	Date:
Departmental Approval: N/A	N/A
Faculty/School Approval: N/A	N/A
Faculty Dean's Approval: Dr. Nicholas Krouglicof	October 24, 2018
Graduate Studies Dean's Approval: N/A	N/A
Registrar's Office Approval: Pam McGuigan	November 13, 2018
APCC Meeting Date Approval	December 20, 2018



CALENDAR & CURRICULUM CHANGE

Motion #24

Revision is for a: **Calendar Entry Change**

Faculty/School/Department: **Sustainable Design Engineering**

Department/Program(s)/Academic Regulations: **Bachelor of Science in Sustainable Design Engineering**

MOTION: To have the change in course number and description for ENGN 3260 (Materials, Mechanics, and Manufacturing) be approved as proposed.

<u>Reproduction of Current Calendar Entry</u>	<u>Proposed revision with changes underlined and deletions indicated clearly</u>
<p>3260 MATERIALS, MECHANICS, AND MANUFACTURING This course covers the basic theory and practice of modern manufacturing processes in an applied context. Students will experience machining, forming, and casting of objects using a variety of materials. Material properties are investigated and mechanical properties analyzed with consideration for optimal performance. Students will produce parts using CAD/CAM/CNC tools and assess part quality to predefined specifications and tolerances. Lab periods will include hands-on machining and industrial field tours. PREREQUISITE: Engineering 2310 Three lecture hours and three lab hours per week</p>	<p>3260 <u>2360</u> MATERIALS, MECHANICS, AND MANUFACTURING This course covers the basic theory and practice of modern manufacturing processes in an applied context. Students will experience machining, forming, and casting of objects using a variety of materials. Material properties are investigated and mechanical properties analyzed with consideration for optimal performance. Students will produce parts using CAD/CAM/CNC tools and assess part quality to predefined specifications and tolerances. Lab periods will include hands-on machining and industrial field tours. <u>This course advances the fundamental knowledge of materials science to focus on materials processing and industrial manufacturing techniques for metals, ceramics, polymers, and composites. Knowledge of heat treatment and various metallurgical processes, as well as cold-working, subtractive and additive manufacturing, corrosion and fatigue, will be linked to an evaluation of materials properties, materials performance and mechanical behavior, and microstructure. Students will apply the materials life cycle and use various tools to assess quality and integrity to predefined specifications and tolerances. The materials phenomena and manufacturing techniques discussed in lecture will be demonstrated through experiential labs.</u> PREREQUISITE: Engineering 2310 Three lecture hours and three lab hours per week</p>

Rationale for Change: This course is being renumbered as a result of being moved to the second year of the BSc Sustainable Design Engineering Program. The course description is being updated to more accurately reflect the existing course content.

Effective Date: September 2019

Implications for Other Programs: None



CALENDAR & CURRICULUM CHANGE

Motion #24

Impact on Students Currently Enrolled: As this course is being moved from Year 3 to Year 2, students currently enrolled in Year 2 will need to be able to take it in their Year 3.

Authorization	Date:
Departmental Approval: N/A	N/A
Faculty/School Approval: N/A	N/A
Faculty Dean's Approval: Dr. Nicholas Krouglicof	October 24, 2018
Graduate Studies Dean's Approval: N/A	N/A
Registrar's Office Approval: Pam McGuigan	November 13, 2018
APCC Meeting Date Approval	December 20, 2018

CALENDAR & CURRICULUM CHANGE

Motion #25

Revision is for a: **Calendar Entry Change**

Faculty/School/Department: **Sustainable Design Engineering**

Department/Program(s)/Academic Regulations: **Bachelor of Science in Sustainable Design Engineering**

MOTION: To have the change in course title and prerequisite for ENGN 2610 (Thermo Fluids I) be approved as proposed.

<u>Reproduction of Current Calendar Entry</u>	<u>Proposed revision with changes underlined and deletions indicated clearly</u>
2610 THERMO FLUIDS I PREREQUISITE: Chemistry 1120 and Mathematics 1920 Three hours lecture and three lab hours per week	2610 THERMO FLUIDS I: <u>THERMODYNAMICS</u> PREREQUISITE: Chemistry 1120 <u>1110 must be completed or taken concurrently;</u> and Mathematics 1920 Three hours lecture and three lab hours per week

Rationale for Change: The name change is to better reflect the course content. The prerequisite change is due to Chemistry 1120 no longer being a required course in the Bachelor of Science in Sustainable Design Engineering program.

Effective Date: September 2019

Implications for Other Programs: None.

Impact on Students Currently Enrolled: None.

<i>Authorization</i>	<i>Date:</i>
Departmental Approval: N/A	N/A
Faculty/School Approval: N/A	N/A
Faculty Dean's Approval: Dr. Nicholas Krouglicof	October 24, 2018
Graduate Studies Dean's Approval: N/A	N/A
Registrar's Office Approval: Pam McGuigan	November 13, 2018
APCC Meeting Date Approval	December 20, 2018



CALENDAR & CURRICULUM CHANGE

Motion #26

Revision is for a: **Course Title Change**

Faculty/School/Department: **Sustainable Design Engineering**

Department/Program(s)/Academic Regulations: **Bachelor of Science in Sustainable Design Engineering**

MOTION: To have the change in course title for ENGN 2620 (Thermo Fluids II) be approved as proposed.

<u>Reproduction of Current Calendar Entry</u>	<u>Proposed revision with changes underlined and deletions indicated clearly</u>
2620 THERMO FLUIDS II	2620 THERMO FLUIDS II: <u>FLUID MECHANICS</u>

Rationale for Change: The name change revision is to better reflect the course content.

Effective Date: September 2019

Implications for Other Programs: None

Impact on Students Currently Enrolled: None

Authorization	Date:
Departmental Approval: N/A	N/A
Faculty/School Approval: N/A	N/A
Faculty Dean's Approval: Dr. Nicholas Krouglicof	October 24, 2018
Graduate Studies Dean's Approval: N/A	N/A
Registrar's Office Approval: Pam McGuigan	November 13, 2018
APCC Meeting Date Approval	December 20, 2018

CALENDAR & CURRICULUM CHANGE

Motion #27

Revision is for a: **Calendar Entry Change**

Faculty/School/Department: **Sustainable Design Engineering**

Department/Program(s)/Academic Regulations: **Bachelor of Science in Sustainable Design Engineering**

MOTION: To approve the proposed changes for ENGN 2810 (Electric Circuits I).

<u>Reproduction of Current Calendar Entry</u>	<u>Proposed revision with changes underlined and deletions indicated clearly</u>
<p>2810 ELECTRIC CIRCUITS I This course is a study of topics such as Ohm's laws, Kirchoff's laws, equilibrium, equations, Thevenin's and Norton's theorems, transient circuit sinusoidal steady state response, complex impedance, complex frequency, and magnetically coupled circuits, PREREQUISITE: Math 1920 and Physics 1120 Three hours lecture and two hours tutorial per week</p>	<p>2810 ELECTRIC CIRCUITS I This course is a study of topics such as: <u>voltage, current, resistance, power, Ohm's laws, Kirchhoff's laws, equilibrium, equations, sources, voltage and current division, nodal and mesh analysis, linearity and superposition.</u> Thevenin's and Norton's theorems, transient circuit sinusoidal steady state response, complex impedance, complex frequency, and magnetically coupled circuits, <u>capacitance and inductance, RL and RC circuits. Concepts of electric charge, force and field are also introduced.</u> PREREQUISITE: Mathematics 1920 and Physics 1120 Three hours lecture and two <u>three</u> hours tutorial lab per week</p>

Rationale for Change: The course name and description are being updated to better reflect the existing course content and to include those PHYS 1120 topics which are specifically relevant to engineering. PHYS 1120 is being removed as a program requirement. The prerequisite change is due to Physics 1120 no longer being a required course in the Bachelor of Sustainable Design Engineering program.

Effective Date: September 2019

Implications for Other Programs: PHYS 1120 will no longer be a required course in the engineering program.

Impact on Students Currently Enrolled: Engineering students will no longer be required to take PHYS 1120.

Authorization	Date:
Departmental Approval: N/A	N/A
Faculty/School Approval: N/A	N/A
Faculty Dean's Approval: Dr. Nicholas Krouglicof	October 24, 2018
Graduate Studies Dean's Approval: N/A	N/A
Registrar's Office Approval: Pam McGuigan	November 13, 2018
APCC Meeting Date Approval	December 20, 2018

CALENDAR & CURRICULUM CHANGE

Motion #28

Revision is for a: **Calendar Entry Change**

Faculty/School/Department: **Sustainable Design Engineering**

Department/Program(s)/Academic Regulations: **Bachelor of Science in Sustainable Design Engineering**

MOTION: To approve the proposed changes for ENGN 4230 (Technology Management & Entrepreneurship).

<u>Reproduction of Current Calendar Entry</u>	<u>Proposed revision with changes underlined and deletions indicated clearly</u>
<p>4230 (formerly 4430) TECHNOLOGY MANAGEMENT & ENTREPRENEURSHIP This course provides an overview on how to start and sustain a technology-oriented company. Topics discussed will include the role of technology in society, intellectual property, patents, business plans, financial planning, sources of capital, business structure, liability, tax implications, sales, marketing, operational and human resource management. This course will be taught using problem-based and experiential learning strategies with involvement from real life entrepreneurs as motivators and facilitators. Cross-listed with Computer Science 3840 and SSDE-8230 (Graduate-level project will be defined). PREREQUISITE: Engineering 3710 must be completed or taken concurrently Three lecture hours per week</p>	<p>4230 (formerly 4430) <u>3230</u> TECHNOLOGY MANAGEMENT & ENTREPRENEURSHIP This course provides an overview on how to start and sustain a technology-oriented company. Topics discussed will include the role of technology in society, intellectual property, patents, business plans <u>feasibility studies</u>, financial planning, sources of capital, business structure, liability, tax implications, sales, marketing, operational and human resource management. <u>The focus will be on students as engineers-entrepreneurs with involvement from real life entrepreneurs as motivators and facilitators.</u> This course will be taught using <u>use</u> problem-based and experiential learning strategies <u>to develop new ventures with involvement from real life entrepreneurs as motivators and facilitators.</u> Students who produce a well-developed business idea from this course may be considered for approval to use this as the basis for their final year engineering design project. Cross-listed with Computer Science 3840 and SSDE-8230 (Graduate level project will be defined). PREREQUISITE: Engineering 3710 must be completed or taken concurrently Three lecture hours per week</p>

Rationale for Change: This course is being renumbered as a result of being moved to the third year of the BSc Sustainable Design Engineering Program. **Effective Date:** September 2019

Implications for Other Programs: As this course is cross-listed with Computer Science 3840, changes proposed here should also be made in the calendar description for Computer Science 3840.

Impact on Students Currently Enrolled: As this course is being moved from Year 4 to Year 3, students currently enrolled in Year 3 will need to be able to take it in their Year 4.

Authorization	Date:
Departmental Approval: N/A	N/A
Faculty/School Approval: N/A	N/A
Faculty Dean's Approval: Dr. Nicholas Krouglicof	October 24, 2018
Graduate Studies Dean's Approval: N/A	N/A
Registrar's Office Approval: Pam McGuigan	November 14, 2018
APCC Meeting Date Approval	December 20, 2018

CALENDAR & CURRICULUM CHANGE

Motion #29

Revision is for a: **Calendar Entry Change**

Faculty/School/Department: **Sustainable Design Engineering**

Department/Program(s)/Academic Regulations: **Bachelor of Science in Sustainable Design Engineering**

MOTION: To approve the proposed changes for ENGN 3630 (Thermo Fluids III with Heat Transfer).

<u>Reproduction of Current Calendar Entry</u>	<u>Proposed revision with changes underlined and deletions indicated clearly</u>
<p>3630 THERMOFLUIDS III WITH HEAT TRANSFER</p> <p>This course advances student knowledge across the related fields of thermodynamics, fluid mechanics, and heat transfer. Generalized relationships are reviewed including ideal and real gas effects, gas tables, equations of state and generalized compressibility, enthalpy, and entropy charts. Applied experimentation with refrigerators, air conditioning and heat pumps is used to further enhance focus on conversion efficiency and performance. Flow in constant area ducts with friction and heat exchange, steady and unsteady heat conduction, convection and radiation phenomena with application to selected problems in several fields of engineering is also introduced.</p> <p>PREREQUISITE: Engineering 2610</p> <p>Three lecture hours and three lab hours per week</p>	<p>3630 THERMO FLUIDS III; WITH HEAT TRANSFER <u>AND THERMODYNAMIC CYCLES</u></p> <p>This course advances student knowledge across the related fields of thermodynamics, fluid mechanics, and heat transfer <u>with an emphasis on engineering applications</u>. Generalized relationships are reviewed including ideal and real gas effects, gas tables, equations of state and generalized compressibility, enthalpy, and entropy charts. Applied experimentation with refrigerators, air conditioning and heat pumps is used to further enhance focus on conversion efficiency and performance. <u>Heat transfer topics include: flows with</u> Flow in constant area ducts with friction and heat exchange, steady and unsteady heat conduction, convection and radiation phenomena; <u>and heat exchanger analysis. Thermodynamic cycles topics include: internal combustion as it applies to power generation; air standard and vapour cycles; gas turbines; jet engine; and steam power plants. with application to</u> selected problems in several fields of engineering is also introduced.</p> <p>PREREQUISITE: Engineering 2610 <u>2620</u></p> <p>Three lecture hours and three lab hours per week</p>

Rationale for Change: The name change and the course description change are to better reflect the existing course content. The prerequisite change is due to Engineering 2620 becoming a required course in the Bachelor of Science in Sustainable Design Engineering program.

Effective Date: September 2019

Implications for Other Programs: None

Impact on Students Currently Enrolled: None

Authorization	Date:
Departmental Approval: N/A	N/A
Faculty/School Approval: N/A	N/A
Faculty Dean's Approval: Dr. Nicholas Krouglicof	October 24, 2018
Graduate Studies Dean's Approval: N/A	N/A
Registrar's Office Approval: Pam McGuigan	November 14, 2018
APCC Meeting Date Approval	December 20, 2018

CALENDAR & CURRICULUM CHANGE

Motion #30

Revision is for a: **Calendar Entry Change**

Faculty/School/Department: **Sustainable Design Engineering**

Department/Program(s)/Academic Regulations: **Sustainable Design Engineering**

MOTION: To approve the proposed changes for ENGN 3710 (Project-Based Professional Practice I).

<u>Reproduction of Current Calendar Entry</u>	<u>Proposed revision with changes underlined and deletions indicated clearly</u>
<p>3710 PROJECT-BASED PROFESSIONAL PRACTICE I</p> <p>This course is the first of a four-course project-based stream that simulates the practice of a professional engineer. Students working closely with faculty supervisors and industry partners will experience an actual research and development project where they are expected to research the problem and develop a highly technical solution that is not patented or commercially available. Following best practices in project management, students will develop detailed project proposals, conceptual designs, and proof of concepts within the ethical and safety considerations that are fundamental to the profession. Concepts are further developed into operational prototypes during the second semester.</p> <p>PREREQUISITE: Engineering 2220 with a grade of at least 60%, Engineering 2310, Engineering 2340, Engineering 2610, and Engineering 2810 Six lecture hours and six lab hours per week</p>	<p>3710 PROJECT-BASED PROFESSIONAL PRACTICE I</p> <p><u>Building on the work in previous design courses,</u> tThis course is the first of a four-course project-based stream that <u>series of upper-year courses which</u> simulates the practice of a professional engineer. <u>Following a design-build-test approach,</u> s<u>Students working in a team-based environment to deliver design solutions to real-world industrial clients.</u> Students working closely with faculty supervisors and industry partners will experience an actual research and development project where they are expected to research the problem and develop a highly technical solution that is not patented or commercially available. Following best practices in project management <u>and sustainability,</u> will students <u>will</u> develop detailed project proposals, conceptual designs, and <u>proofs</u> of concepts within the ethical and safety considerations that are fundamental to the profession. Concepts are further developed into operational prototypes <u>during the second semester in Engineering 3720.</u></p> <p>PREREQUISITE: Engineering 2220 with a grade of at least 60%, Engineering 2310 <u>2360</u>, Engineering 2340, 1340, <u>2610 2620,</u> and Engineering 2810 <u>2830.</u> Six lecture hours and six lab <u>design studio</u> hours per week</p>

Rationale for Change: To more accurately reflect the existing course content. The change in wording from “lab” to “design studio” reflects the actual purpose of the scheduled hours. Prerequisite changes reflect changes to other course numbers and course sequencing.

Effective Date: September 2019

Implications for Other Programs: None

Impact on Students Currently Enrolled: None

Authorization	Date:
Departmental Approval: N/A	N/A
Faculty/School Approval: N/A	N/A
Faculty Dean’s Approval: Dr. Nicholas Krouglicof	October 24, 2018
Graduate Studies Dean’s Approval: N/A	N/A
Registrar’s Office Approval: Pam McGuigan	November 15, 2018
APCC Meeting Date Approval	December 20, 2018



CALENDAR & CURRICULUM CHANGE

Motion #31

Revision is for a: **Calendar Entry Change**

Faculty/School/Department: **Sustainable Design Engineering**

Department/Program(s)/Academic Regulations: **Sustainable Design Engineering**

MOTION: To approve the proposed changes for ENGN 3720 (Project-Based Professional Practice II).

<u>Reproduction of Current Calendar Entry</u>	<u>Proposed revision with changes underlined and deletions indicated clearly</u>
<p>3720 PROJECT-BASED PROFESSIONAL PRACTICE II A continuation of Engineering 3710, students will complete detailed designs of their concepts, build full-scale operational prototypes (where possible) and test them in a controlled laboratory and industrial environment (where possible). Working closely with faculty and industry partners, students will prepare patent applications and develop commercialization plans for the products or processes developed. Demonstration of concept during an end of year industry expo is required. PREREQUISITE: Engineering 3710 with a grade of at least 60% Six lecture hours and six lab hours per week</p>	<p>3720 PROJECT-BASED PROFESSIONAL PRACTICE II <u>Continuing the work in</u> A continuation of Engineering 3710 <u>and working closely with their external clients</u>, students will complete detailed designs of their concepts, build full-scale operational prototypes (where possible); <u>and carry out testing and validation of solutions test them</u> in a controlled laboratory and/or industrial environments (where possible), <u>and present their final design solutions to their clients.</u> Working closely with faculty and industry partners, students will prepare patent applications and develop commercialization plans for the products or processes developed. Demonstration of concept during an end of year industry expo is required. PREREQUISITE: Engineering 3710 with a grade of at least 60% Six lecture hours and six lab hours <u>design studio</u> per week</p>

Rationale for Change: To more accurately reflect the existing course content. The change in wording from “lab” to “design studio” reflects the actual purpose of the scheduled hours.

Effective Date: September 2019

Implications for Other Programs: None

Impact on Students Currently Enrolled: None

Authorization	Date:
Departmental Approval: N/A	N/A
Faculty/School Approval: N/A	N/A
Faculty Dean’s Approval: Dr. Nicholas Krouglicof	October 24, 2018
Graduate Studies Dean’s Approval: N/A	N/A
Registrar’s Office Approval: Pam McGuigan	November 15, 2018
APCC Meeting Date Approval	December 20, 2018

CALENDAR & CURRICULUM CHANGE

Motion #32

Revision is for a: **Pre-requisite Addition/Change**

Faculty/School/Department: **Sustainable Design Engineering**

Department/Program(s)/Academic Regulations: **Bachelor of Science in Sustainable Design Engineering**

MOTION: To approve the prerequisite change for ENGN 4310 (Advanced Fabrication Techniques and Computer-Integrated Manufacturing).

<u>Reproduction of Current Calendar Entry</u>	<u>Proposed revision with changes underlined and deletions indicated clearly</u>
ENGN 4310 Advanced Fabrication Techniques and Computer-Integrated Manufacturing PREREQUISITES: Engineering 3340, 3440, or 3540; and Engineering 3260	ENGN 4310 Advanced Fabrication Techniques and Computer-Integrated Manufacturing PREREQUISITES: Engineering 3340, 3440, or 3540; and Engineering 3260 <u>2360</u>

Rationale for Change: The change in prerequisites is a result of Engineering 3260 being renumbered to Engineering 2360

Effective Date: September 2019

Implications for Other Programs: None

Impact on Students Currently Enrolled: None

<i>Authorization</i>	<i>Date:</i>
Departmental Approval: N/A	N/A
Faculty/School Approval: N/A	N/A
Faculty Dean's Approval: Dr. Nicholas Krouglicof	October 24, 2018
Graduate Studies Dean's Approval: N/A	N/A
Registrar's Office Approval: Pam McGuigan	November 15, 2018
APCC Meeting Date Approval	December 20, 2018

CALENDAR & CURRICULUM CHANGE

Motion #33

Revision is for a: **Calendar Entry Change**

Faculty/School/Department: **Sustainable Design Engineering**

Department/Program(s)/Academic Regulations: **Bachelor of Science in Sustainable Design Engineering**

MOTION: To have the change in the course title and course description of ENGN 4550 (Chemical and Biological Processes) be approved as proposed.

<u>Reproduction of Current Calendar Entry</u>	<u>Proposed revision with changes underlined and deletions indicated clearly</u>
<p>4550 (formerly 3590) CHEMICAL AND BIOLOGICAL PROCESSES Processes used in the chemical and biological industries, which emphasize underlying physical, chemical, and biological principles, will be introduced. By carrying out the mass and energy balances, student will conduct design and economic assessment of major chemical and biological engineering processes. Introduction to modelling of chemical processes will be covered in this course. PREREQUISITES: Engineering 3340, 3440, or 3540 Three hours of lecture and three hours of lab per week</p>	<p>4550 (formerly 3590) <u>BIOTECHNOLOGICAL CHEMICAL AND BIOLOGICAL PROCESSES</u> Processes used in the chemical and biological industries, which emphasize underlying physical, chemical, and biological principles, will be introduced. By carrying out the mass and energy balances, student will conduct design and economic assessment of major chemical and biological engineering processes. Introduction to modelling of chemical processes will be covered in this course. <u>The basic topics covered in this course may include fermentation, engineering of reactor, natural products purification and their applications in biotechnology sector. The students will learn basic concepts of chemical and biochemical techniques required for the development and purification of materials in biotechnological, biochemical and pharmaceutical industries. The design of fermenters and biological reactors and their modification to improve the industrial applications will be discussed. The design of reactors in context of mass and energy balances will be evaluated and downstream unit processes involved in product recovery will be presented.</u> PREREQUISITES: Engineering 3340, 3440, or 3540 Three hours of lecture and three hours of lab per week</p>

Rationale for Change: The course name and description are being updated to more accurately reflect the existing course content.

Effective Date: September 2019

Implications for Other Programs: None

Impact on Students Currently Enrolled: None

Authorization	Date:
Departmental Approval: N/A	N/A
Faculty/School Approval: N/A	N/A
Faculty Dean's Approval: Dr. Nicholas Krouglicof	October 24, 2018
Graduate Studies Dean's Approval: N/A	N/A
Registrar's Office Approval: Pam McGuigan	November 15, 2018
APCC Meeting Date Approval	December 20, 2018



CALENDAR & CURRICULUM CHANGE

Motion #34

Revision is for a: **Course Description Change**

Faculty/School/Department: **Sustainable Design Engineering**

Department/Program(s)/Academic Regulations: **Bachelor of Science Sustainable Design Engineering**

MOTION: To approve the proposed changes for ENGN 4710 (Project-Based Professional Practice III).

<u>Reproduction of Current Calendar Entry</u>	<u>Proposed revision with changes underlined and deletions indicated clearly</u>
<p>4710 PROJECT-BASED PROFESSIONAL PRACTICE III</p> <p>This course builds on concepts and knowledge learned throughout the third year of the program. Fourth-year students will assume a leadership role in dual cohort (third and fourth year) project teams. Working closely with industry partners and faculty supervisors, students must develop innovative and technology-based solutions with a high level of technical sophistication. Lessons learned from previous project experiences must be applied and students will rely heavily on knowledge content and skills acquired through their engineering science courses. Lab hours will include professional development exercises in isolation of, and preparation for industry projects. Design concepts are further developed into operational prototypes during the second semester. As with all project-based courses, professional responsibility/accountability and an appreciation for best practices and ethical behaviour must be demonstrated.</p> <p>PREREQUISITE: Engineering 3720 with a grade of at least 60%, Engineering 3270, Engineering 3630, Engineering 3820. Engineering 3260 must be completed or taken concurrently. Engineering 4210 must be taken concurrently.</p> <p>Six lecture hours and six lab hours per week</p>	<p>4710 PROJECT-BASED PROFESSIONAL PRACTICE III</p> <p>This course builds on concepts and knowledge learned throughout the third year of the program. Fourth year students will assume a leadership role in dual cohort (third and fourth year) project teams. Working closely with industry partners and faculty supervisors, students must develop innovative and technology-based solutions with a high level of technical sophistication. Lessons learned from previous project experiences must be applied and students will rely heavily on knowledge content and skills acquired through their engineering science courses. Lab hours will include professional development exercises in isolation of, and preparation for industry projects. Design concepts are further developed into operational prototypes during the second semester. As with all project based courses, professional responsibility/accountability and an appreciation for best practices and ethical behaviour must be demonstrated.</p> <p>This course <u>engages students in implementing the engineering design process and using product management and development tools. Student design teams work closely with industry partners to develop innovative and sustainable solutions to meet global challenges. Additionally, this course emphasizes the role of analysis, simulation and modeling in engineering design. Students further develop their professional and technical skills through activity-, project- and problem-based learning. Through the application of appropriate frameworks to their projects, students gain an appreciation for best practices and ethical behavior as well as an awareness of the role of engineers in society, in particular the concepts of engineering leadership and sustainable design.</u></p> <p>PREREQUISITE: Engineering 3720 with a grade of at least 60%, Engineering 3270, Engineering 3630, Engineering 3820, <u>and Engineering 3230.</u> Engineering 3260 must be completed or taken concurrently. Engineering 4210 must be taken concurrently.</p> <p>Six lecture hours and six <u>lab design studio</u> hours per week</p>



CALENDAR & CURRICULUM CHANGE

Motion #34

Rationale for Change: To more accurately reflect the existing course content. The change in wording from “lab” to “design studio” reflects the actual purpose of the scheduled hours. Prerequisite changes reflect changes to other course numbers and course sequencing.

Effective Date: September 2019

Implications for Other Programs: None

Impact on Students Currently Enrolled: None

Authorization	Date:
Departmental Approval: N/A	N/A
Faculty/School Approval: N/A	N/A
Faculty Dean’s Approval: Dr. Nicholas Krouglicof	October 24, 2018
Graduate Studies Dean’s Approval: N/A	N/A
Registrar’s Office Approval: Pam McGuigan	November 15, 2018
APCC Meeting Date Approval	December 20, 2018

CALENDAR & CURRICULUM CHANGE

Motion #35

Revision is for a: **Course Description Change**

Faculty/School/Department: **Sustainable Design Engineering**

Department/Program(s)/Academic Regulations: **Bachelor of Science in Sustainable Design Engineering**

MOTION: To approve the proposed changes for ENGN 4720 (Project-Based Professional Practice IV).

<u>Reproduction of Current Calendar Entry</u>	<u>Proposed revision with changes underlined and deletions indicated clearly</u>
<p>4720 PROJECT-BASED PROFESSIONAL PRACTICE IV</p> <p>A continuation of Engineering 4710, this course is the capstone and culmination of all that has been learned in the program. Students will complete detailed designs of their concepts, build full-scale operational prototypes (where possible) and test them in a fully operational industrial involvement. Working closely with industry clients, students will prepare patents and attempt commercialization of products or processes developed. Students are exposed to all aspects of project management, engineering economics, law, ethics, and safety; and capability outcomes are closely monitored in this class. Demonstration of concept during an end of year industry expo is required.</p> <p>PREREQUISITE: Engineering 4710 with a grade of at least 60%</p> <p>Six hours of lecture and six hours of lab per week</p>	<p>4720 PROJECT-BASED PROFESSIONAL PRACTICE IV</p> <p>A continuation of Engineering 4710, this course is the capstone and culmination of all that has been learned in the program. Students will complete detailed designs of their concepts, build full-scale operational prototypes (where possible) and test them in a fully operational industrial involvement. Working closely with industry clients, students will prepare patents and attempt commercialization of products or processes developed. Students are exposed to all aspects of project management, engineering economics, law, ethics, and safety; and capability outcomes are closely monitored in this class. Demonstration of concept during an end of year industry expo is required.</p> <p><u>This course engages students in implementing the engineering design process and using product management and development tools. Student design teams work closely with industry partners to develop innovative and sustainable solutions to meet global challenges. Additionally, this course emphasizes the role of prototyping and manufacturing, testing and verification, design of experiments, optimization and feasibility. Students further develop their professional and technical skills through activity-, project- and problem-based learning. Through the application of appropriate frameworks to their projects, students gain an appreciation for best practices and ethical behavior as well as an awareness the of role of engineers in society, in particular the concepts of engineering leadership and sustainable design.</u></p> <p>PREREQUISITE: Engineering 4710 with a grade of at least 60%</p> <p>Six hours of lecture and six hours of lab <u>design studio</u> per week</p>

Rationale for Change: To more accurately reflect the course content. The change in wording from “lab” to “design studio” reflects the actual purpose of the scheduled hours.

Effective Date: September 2019



CALENDAR & CURRICULUM CHANGE

Motion #35

Implications for Other Programs: None

Impact on Students Currently Enrolled: None

Authorization	Date:
Departmental Approval: N/A	N/A
Faculty/School Approval: N/A	N/A
Faculty Dean's Approval: Dr. Nicholas Krouglicof	October 24, 2018
Graduate Studies Dean's Approval: N/A	N/A
Registrar's Office Approval: Pam McGuigan	November 15, 2018
APCC Meeting Date Approval	December 20, 2018

CALENDAR & CURRICULUM CHANGE

Motion #36

Revision is for a: **Calendar Entry Change**

Faculty/School/Department: **Sustainable Design Engineering**

Department/Program(s)/Academic Regulations: **Bachelor of Science in Sustainable Design Engineering**

MOTION: To revise the calendar entry for admission criteria for high school applicants to the Bachelor of Science in Sustainable Design Engineering degree program.

<u>Reproduction of Current Calendar Entry</u>	<u>Proposed revision with changes underlined and deletions indicated clearly</u>
<p>Bachelor of Science in Engineering (Sustainable Design Engineering)</p> <p>High School Applicants: High school applicants wishing to pursue engineering at UPEI apply to the Faculty of Science and indicate a preference for engineering. Minimum academic requirements for admission to the Engineering Degree include an overall average of 70% in Grade 12 Academic English, Mathematics, Chemistry, Physics and one other Grade 12 academic subject with no grade lower than 65%. Note: High school applicants should apply by March 1 to be considered for entrance scholarships.</p>	<p><i>To appear under Professional Degree Programs section:</i> Bachelor of Science in Engineering (Sustainable Design Engineering)</p> <p>High School Applicants: High school applicants wishing to pursue engineering at UPEI apply to the Faculty of Science and indicate a preference for engineering. Minimum academic requirements for admission to the Engineering Degree include an overall average of 70% in Grade 12 Academic English, Mathematics, Chemistry, Physics and one other Grade 12 academic subject with no grade lower than 65%. Note: High school applicants should apply by March 1 to be considered for entrance scholarships.</p> <p><u>Successful completion of Grade 12 examinations in a University Preparatory Program with an overall average of at least 70% in the following courses, with no grade less than 65% and with at least 70% in Grade 12 academic Mathematics:</u></p> <ul style="list-style-type: none"> • <u>Grade 12 academic English</u> • <u>Grade 12 academic Mathematics</u> • <u>Two additional Grade 12 academic Science subjects, chosen from Biology, Chemistry or Physics</u> • <u>One additional Grade 12 academic course</u> <p><u>The prerequisite for Chemistry 1110 (a required course in the engineering program) is Grade 12 academic Chemistry or UPEI Chemistry 0001.</u></p> <p>Note: High school applicants should apply by March 1 to be considered for entrance scholarships.</p>

Rationale for Change: The Faculty of Sustainable Design Engineering wants to ensure that its admission policy is free of as many entry barriers as possible while, at the same time, ensuring that an appropriate entry standard is being met by all students and as such request an immediate effective date. Further, the Faculty believes that Grade 12 academic Mathematics is one of the key predictors of student success in the program. To this end, then, Grade 12 academic Chemistry and Grade 12 academic Physics are being



CALENDAR & CURRICULUM CHANGE

Motion #36

removed as entry requirements for the program and the grade requirement for Grade 12 academic Mathematics is being increased from 65% to 70%.

Effective Date: Immediately

Implications for Other Programs: None

Impact on Students Currently Enrolled: None

Authorization

Date:

Departmental Approval: N/A	N/A
Faculty/School Approval: N/A	N/A
Faculty Dean's Approval: Dr. Nicholas Krouglicof	October 24, 2018
Graduate Studies Dean's Approval: N/A	N/A
Registrar's Office Approval: Pam McGuigan	November 15, 2018
APCC Meeting Date Approval	December 20, 2018

CALENDAR & CURRICULUM CHANGE

Motion #37

Revision is for a: **Calendar Entry Change**

Faculty/School/Department: **Sustainable Design Engineering**

Department/Program(s)/Academic Regulations: **Bachelor of Science in Sustainable Design Engineering**

MOTION: To revise the calendar entry for the Bachelor of Science in Sustainable Design Engineering degree program.

<u>Reproduction of Current Calendar Entry</u>	<u>Proposed revision with changes underlined and deletions indicated clearly</u>
<p>Faculty of Sustainable Design Engineering http://upei.ca/engineering</p> <p>Overview The Faculty of Sustainable Design Engineering at UPEI offers a progressive and innovative four-year Bachelor of Science in Engineering (Sustainable Design Engineering) degree which recognizes the need for a broad and balanced engineering education. The program follows current trends in engineering education and focuses on student outcomes. Small class sizes within an activity-based learning environment allow faculty and staff to be student-centric and to provide specific and timely input to individual students.</p> <p>Students are exposed to a broad base of knowledge and skills in engineering science, natural science, mathematics, and complementary studies in concert with an applied project-based design stream simulating the engineering profession. Students entering the degree program will be actively engaged in the profession of engineering from day one, providing creative and sustainable solutions to society's problems. The degree program is designed to provide a highly flexible learning environment that is responsive to the dynamic needs of students and the industries that employ them.</p> <p>In addition to fundamental science, engineering science and mathematics courses, students are required to develop skills in engineering design, communication, analysis, project management, professional ethics and more. With a solid grounding in these fundamentals, students in Program Years 3 and 4 can enhance their technical knowledge by choosing courses from among three engineering focus areas: Mechatronics (MT), Sustainable Energy (SE), or Bioresources (BR).</p> <p>Engineered by Design</p>	<p>Faculty of Sustainable Design Engineering http://upei.ca/engineering</p> <p>Overview The Faculty of Sustainable Design Engineering at UPEI offers a progressive and innovative four-year Bachelor of Science in Engineering (Sustainable Design Engineering) degree which recognizes the need for a broad and balanced engineering education. The program follows current trends in engineering education and focuses on student outcomes. Small class sizes within an activity-based learning environment allow faculty and staff to be student-centric and to provide specific and timely input to individual students.</p> <p>Students are exposed to a broad base of knowledge and skills in engineering science, natural science, mathematics, and complementary studies in concert with an applied project-based design stream simulating the engineering profession. Students entering the degree program will be actively engaged in the profession of engineering from day one, providing creative and sustainable solutions to society's problems. The degree program is designed to provide a highly flexible learning environment that is responsive to the dynamic needs of students and the industries that employ them.</p> <p>In addition to fundamental science, engineering science and mathematics courses, students are required to develop skills in engineering design, communication, analysis, project management, professional ethics and more. With a solid grounding in these fundamentals, students in Program Years 3 and 4 can enhance their technical knowledge by choosing courses from among three engineering focus areas: Mechatronics (MT), Sustainable Energy (SE), or Bioresources (BR).</p> <p>Engineered by Design</p> <p>It is increasingly recognized that understanding basic</p>

CALENDAR & CURRICULUM CHANGE

Motion #37

<u>Reproduction of Current Calendar Entry</u>	<u>Proposed revision with changes underlined and deletions indicated clearly</u>
<p>It is increasingly recognized that understanding basic science and mathematics are only two of the many areas that are essential to professional engineering practice. Engineering students in this program must make responsible decisions based on good judgment and an ability to justify decisions within a structured analytical framework. Based on this generalist philosophy, this program is designed to develop a student's ability to think. This fundamental requirement of engineers to think critically in response to ever-changing and complex situations is accomplished through a design stream core which relies heavily on inquiry-based learning supported by traditional lecture-based knowledge. The progression in complex thinking skills occurs over the duration of the four-year program and beyond through appreciation of lifelong learning and professional development.</p> <p>An integrated, project-based professional practice (PBPP) stream provides an applied foundation where students work on real community and industry-based projects in every semester of their program. Traditional content courses are delivered via an integrated and timely approach with the PBPP courses so that professional practice skills are developed in a simulated workplace environment. This program emphasizes design as an essential element of engineering as reflected in the Community Design Program (Year 1), and the Junior Design (Year 2) and Senior Design (Years 3 and 4) Clinics.</p> <p>The following core design courses must be taken in succession to support the students' developing skills.</p> <p>Community Design Program (Program Year 1)</p> <ol style="list-style-type: none"> 1. Engineering 1210—Engineering Communication 2. Engineering 1220—Engineering Analysis <p>Junior Design Clinic (Program Year 2)</p> <ol style="list-style-type: none"> 3. Engineering 2210—Engineering Projects I 4. Engineering 2220—Engineering Projects II <p>Senior Design Clinic (Program Years 3 and 4)</p>	<p>science and mathematics are only two of the many areas that are essential to professional engineering practice. Engineering students in this program must make responsible decisions based on good judgment and an ability to justify decisions within a structured analytical framework. Based on this generalist philosophy, this program is designed to develop a student's ability to think. This fundamental requirement of engineers to think critically in response to ever-changing and complex situations is accomplished through a design stream core which relies heavily on inquiry-based learning supported by traditional lecture-based knowledge. The progression in complex thinking skills occurs over the duration of the four-year program and beyond through appreciation of lifelong learning and professional development.</p> <p><u>An integrated, stream of project-based design clinic courses through all four-years of the program provides students with the opportunity to develop knowledge and skills through working project-based professional practice (PBPP) stream provides an applied foundation where students work on real community and industry-based projects. in every semester of their program.</u> Traditional content courses are delivered via an integrated and timely approach with the PBPP courses so that professional practice skills are developed in a simulated workplace environment. This program emphasizes design as an essential element of engineering as reflected in the Community Design Program (Year 1), and the Junior Design (Year 2) and Senior Design (Years 3 and 4) Clinics.</p> <p>The following core design courses must be taken in succession to support the students' developing skills.</p> <p>Community Design Program (Program Year 1)</p> <ol style="list-style-type: none"> 1. Engineering 1210—Engineering Communications 2. Engineering 1220—Engineering Analysis <p>Junior Design Clinic (Program Year 2)</p> <ol style="list-style-type: none"> 3. Engineering 2210—Engineering Projects I 4. Engineering 2220—Engineering Projects II <p>Senior Design Clinics (Program Years 3 and 4)</p> <ol style="list-style-type: none"> 5. Engineering 3710—Project-Based Professional

CALENDAR & CURRICULUM CHANGE

Motion #37

<u>Reproduction of Current Calendar Entry</u>	<u>Proposed revision with changes underlined and deletions indicated clearly</u>
<p>5. Engineering 3710—Project-Based Professional Practice I 6. Engineering 3720—Project-Based Professional Practice II 7. Engineering 4710—Project-Based Professional Practice III 8. Engineering 4720—Project-Based Professional Practice IV</p> <p>Sustainable Design Engineering Degree</p> <p>Students are strongly encouraged to meet with a faculty advisor early in the program to review course selection. The following is the course sequence for the four-year degree: Please note that a 60% minimum grade is required in each of the following courses to proceed to the next course: Engineering 1210, 1220, 2210, 2220, 3710, 3720 and 4710.</p> <p>Program Year 1—Term 1</p> <p>Engineering 1210—Engineering Communications Engineering 1310—Computer Programming with Engineering Applications Physics 1110—General Physics I Chemistry 1110—General Chemistry I Mathematics 1910—Single Variable Calculus I UPEI 1010—Writing Studies (or UPEI 1020, or UPEI 1030)</p> <p>Program Year 1—Term 2</p> <p>Engineering 1220—Engineering Analysis Engineering 1520—Engineering and the Biosphere Physics 1120—General Physics II Chemistry 1120—General Chemistry II Mathematics 1920—Single Variable Calculus II Statistics 1210 (formerly 2210)—Introductory Statistics</p> <p>Program Year 2—Term 3</p> <p>Engineering 2210—Engineering Projects I Engineering 2310—Strength of Materials Engineering 2610—Thermo Fluids I Engineering 2810—Electric Circuits I Mathematics 2610—Linear Algebra Mathematics 2910—Multivariable and Vector Calculus</p> <p>Program Year 2—Term 4</p>	<p>Practice I 6. Engineering 3720—Project-Based Professional Practice II 7. Engineering 4710—Project-Based Professional Practice III 8. Engineering 4720—Project-Based Professional Practice IV</p> <p>Sustainable Design Engineering Degree</p> <p>Students are strongly encouraged to meet with a faculty advisor early in the program to review course selection. The following is the course sequence for the four-year degree. <u>A five-year degree sequence is also available.</u> Please note that a 60% minimum grade is required in each of the following courses to proceed to the next course: Engineering 1210, 1220, 2210, 2220, 3710, 3720 and 4710.</p> <p>Program Year 1—Term 1</p> <p>Engineering 1210—Engineering Communications <u>Engineering 1230 – Engineering Mechanics I: Statics</u> Engineering 1310—Computer Programming with Engineering Applications <u>Engineering 1410 – Sustainability in Engineering Design</u> Physics 1110—General Physics I Chemistry 1110—General Chemistry I Mathematics 1910—Single Variable Calculus I UPEI 1010—Writing Studies (or UPEI 1020, or UPEI 1030)</p> <p>Program Year 1—Term 2</p> <p>Engineering 1220—Engineering Analysis <u>Engineering 1250 – Materials Science</u> <u>Engineering 1310 – Computer Programming with Engineering Applications</u> <u>Engineering 1340 – Engineering Mechanics II: Dynamics</u> Engineering 1520—Engineering and the Biosphere Physics 1120—General Physics II Chemistry 1120—General Chemistry II Mathematics 1920—Single Variable Calculus II Statistics 1210 (formerly 2210)—Introductory Statistics <u>One (1) humanities elective (courses typically offered by the Faculty of Arts, except language acquisition or economics courses)</u></p>

CALENDAR & CURRICULUM CHANGE

Motion #37

<u>Reproduction of Current Calendar Entry</u>	<u>Proposed revision with changes underlined and deletions indicated clearly</u>
<p>Engineering 2220—Engineering Projects II Engineering 2340—Engineering Dynamics Mathematics 3010—Differential Equations Two (2) technical electives* One (1) humanities elective (courses typically offered by the Faculty of Arts, except basic languages and economics)</p> <p>Program Year 3—Term 5</p> <p>Engineering 3710—Project-Based Professional Practice I Engineering 3220—Engineering Measurements Engineering 3260—Materials, Mechanics, and Manufacturing Engineering 3810—Systems Engineering One (1) introductory engineering focus area elective**</p> <p>Program Year 3—Term 6</p> <p>Engineering 3720—Project-Based Professional Practice II Engineering 3270—Machines & Automatic Controls Engineering 3630—Thermofluids III with Heat Transfer Engineering 3820—System Dynamics with Simulation One (1) engineering focus area elective**</p> <p>Program Year 4—Term 7</p> <p>Engineering 4710—Project-Based Professional Practice III Engineering 4210—Facilitated Study & Experimental Practice Engineering 4230—Technology Management & Entrepreneurship One (1) engineering focus area elective**</p> <p>Program Year 4—Term 8</p> <p>Engineering 4720—Project-Based Professional Practice IV One (1) engineering focus area elective** One (1) science or business elective One (1) humanities elective (courses typically offered by the Faculty of Arts, except basic languages and economics)</p>	<p>Program Year 2—Term 3</p> <p><u>Engineering 2110 – Statistics for Engineering Applications</u> Engineering 2210—Engineering Projects I Engineering 2310—Strength of Materials Engineering 2610—Thermo Fluids I: <u>Thermodynamics</u> Engineering 2810—Electric Circuits I Mathematics 2610 – Linear Algebra Mathematics 2910—Multivariable and Vector Calculus</p> <p>Program Year 2—Term 4</p> <p>Engineering 2220—Engineering Projects II Engineering 2340 – Engineering Dynamics <u>Engineering 2360—Materials, Mechanics, and Manufacturing</u> <u>Engineering 2620 – Thermo Fluids II: Fluid Mechanics</u> <u>Engineering 2830 – Digital Logic Design</u> <u>Mathematics 2610 – Linear Algebra</u> Mathematics 3010—Differential Equations Two (2) technical electives* One (1) humanities elective (courses typically offered by the Faculty of Arts, except basic languages and economics)</p> <p>Program Year 3—Term 5</p> <p>Engineering 3220 – Engineering Measurements <u>Engineering 3630 – Thermo Fluids III: Heat Transfer and Thermodynamic Cycles</u> Engineering 3260 – Materials, Mechanics, and Manufacturing Engineering 3710—Project-Based Professional Practice I Engineering 3810—Systems Engineering One (1) introductory engineering focus area elective** <u>One (1) introductory engineering focus area elective*</u></p> <p>Program Year 3—Term 6</p> <p><u>Engineering 3230 – Technology Management and Entrepreneurship</u> Engineering 3270—Machines & Automatic Controls Engineering 3630 – Thermofluids III with Heat Transfer Engineering 3720—Project-Based Professional Practice II Engineering 3820—System Dynamics with Simulation</p>

CALENDAR & CURRICULUM CHANGE

Motion #37

<u>Reproduction of Current Calendar Entry</u>	<u>Proposed revision with changes underlined and deletions indicated clearly</u>
<p>Students should consult with a faculty advisor before choosing electives.</p> <p>*Any two of the following technical electives may be taken in Program Year 2 – Term 4:</p> <ul style="list-style-type: none"> • Engineering 2120—Geology for Engineers • Engineering 2240—Introduction to Structural Engineering • Engineering 2250—Materials Science • Engineering 2350—Kinematics and Dynamics of Machines • Engineering 2420—Fundamentals of Environmental Engineering • Engineering 2430—Engineering Economics • Engineering 2520—Fundamentals of Process Engineering • Engineering 2620—Thermo Fluids II • Engineering 2820—Electric Circuits II • Computer Science 1610—Digital Systems <p>** The first engineering focus area elective (Program Year 3, Term 5) must be the introductory elective course in either mechatronics, sustainable energy, or bio-resources. The remaining engineering focus area electives in Terms 6, 7 and 8 can be selected from any of the following courses in any of the three focus areas. At least one of the engineering focus area electives must be at the 4000 level.</p> <ul style="list-style-type: none"> • Engineering 3370 - Mechatronic System Integration and Interface Design • Engineering 3380 - Real-time Embedded Systems • Engineering 3390 - Introduction to Mechatronic Computer-Aided Product Development, Modelling and Simulation • Engineering 3450 - Wind and Water Power • Engineering 3460 - Solar Energy and Electricity Storage • Engineering 3490 - Chemical Energy Conversion • Engineering 3570 - Engineering Applications of Biological Materials • Engineering 3580 - Soil Mechanics • Engineering 3850 - Engineering Applications of Numerical Methods • Engineering 4310 - Advanced Fabrication Techniques and Computer-Integrated Manufacturing • Engineering 4320 - Control System Design 	<p>One (1) engineering focus area elective** One (1) engineering focus area elective*</p> <p>Program Year 4—Term 7</p> <p>Engineering 4210—Facilitated Study & Experimental Practice Engineering 4230—Technology Management & Entrepreneurship Engineering 4710—Project-Based Professional Practice III <u>Engineering 4850 – Computational Methods for Engineering Design</u> One (1) engineering focus area elective** One (1) engineering focus area elective*</p> <p>Program Year 4—Term 8</p> <p>Engineering 4720—Project-Based Professional Practice IV One (1) engineering focus area elective** One (1) engineering focus area elective* One (1) science or business elective One (1) humanities elective (courses typically offered by the Faculty of Arts, except basic languages <u>acquisition</u> and <u>or economics courses</u>)</p> <p>Students should consult with a faculty advisor before choosing electives.</p> <p>*Any two of the following technical electives may be taken in Program Year 2 – Term 4:</p> <ul style="list-style-type: none"> • Engineering 2120—Geology for Engineers • Engineering 2240—Introduction to Structural Engineering • Engineering 2250—Materials Science • Engineering 2350—Kinematics and Dynamics of Machines • Engineering 2420—Fundamentals of Environmental Engineering • Engineering 2430—Engineering Economics • Engineering 2520—Fundamentals of Process Engineering • Engineering 2620—Thermo Fluids II • Engineering 2820—Electric Circuits II • Computer Science 1610—Digital Systems

CALENDAR & CURRICULUM CHANGE

Motion #37

<u>Reproduction of Current Calendar Entry</u>	<u>Proposed revision with changes underlined and deletions indicated clearly</u>
<ul style="list-style-type: none"> • Engineering 4330 - Innovations in Biomedical Engineering • Engineering 4350 - Advanced Robotic Dynamics and Control • Engineering 4370 - Fluid Power Control • Engineering 4410 - Macro Energy Systems • Engineering 4440 - Advanced Energy Storage • Engineering 4450 - Fluid Loads on Energy Structures • Engineering 4470 - Micro Grids • Engineering 4510 - Geoinformatics in Bioresources • Engineering 4530 - Fundamentals of Agricultural Machinery • Engineering 4550 - Chemical and Biological Processes <p>* Technical Electives (Program Year 2, Term 4) Any two of the following technical electives may be taken in Program Year 2, Term 4: Engineering 2120—Geology for Engineers Engineering 2240—Introduction to Structural Engineering Engineering 2250—Materials Science Engineering 2350—Kinematics and Dynamics of Machines Engineering 2420—Fundamentals of Environmental Engineering Engineering 2430—Engineering Economics Engineering 2520—Fundamentals of Process Engineering Engineering 2620—Thermo Fluids II Engineering 2820—Electric Circuits II Computer Science 1610—Digital Systems **Engineering Focus Area Electives (Program Years 3 and 4)</p> <p>Mechatronics focus area Fall Semester</p> <p>Engineering 3340—Introduction to Mechatronics Engineering Engineering 4310—Advanced Fabrication Techniques and Computer-Integrated Manufacturing Engineering 4330— Innovations in Biomedical Engineering</p> <p>Winter Semester</p> <p>Engineering 3370—Mechatronic System Integration</p>	<p><u>*Four engineering focus area electives are required.</u> The first of <u>these engineering focus area elective</u> (Program Year 3, Term 5) must be the introductory elective course in either mechatronics, sustainable energy, or bio-resources-:</p> <ul style="list-style-type: none"> • Engineering 3340 – Introduction to Mechatronics Engineering • Engineering 3440 – Introduction to Sustainable Energy Engineering • Engineering 3540 – Introduction to Bioresources Engineering <p>The remaining <u>three</u> engineering focus area electives, in Terms 6, 7 and 8, can be selected from any of the following courses in any of the three focus areas. At least one of the engineering focus area electives must be at the 4000 level.</p> <ul style="list-style-type: none"> • Engineering 3370 - Mechatronic System Integration and Interface Design • Engineering 3380 - Real-time Embedded Systems • Engineering 3390 - Introduction to Mechatronic Computer-Aided Product Development, Modelling and Simulation • Engineering 3450 - Wind and Water Power • Engineering 3460 - Solar Energy and Electricity Storage • Engineering 3490 - Chemical Energy Conversion • Engineering 3570 - Engineering Applications of Biological Materials • Engineering 3580 - Soil Mechanics • Engineering 3850—Engineering Applications of Numerical Methods • Engineering 4310 - Advanced Fabrication Techniques and Computer-Integrated Manufacturing • Engineering 4320 - Control System Design • Engineering 4330 - Innovations in Biomedical Engineering • Engineering 4350 - Advanced Robotic Dynamics and Control • Engineering 4370 - Fluid Power Control • Engineering 4410 - Macro Energy Systems • Engineering 4440 - Advanced Energy Storage • Engineering 4450 - Fluid Loads on Energy Structures • Engineering 4470 - Micro Grids • Engineering 4510 - Geoinformatics in Bioresources • Engineering 4530 - Fundamentals of Agricultural

CALENDAR & CURRICULUM CHANGE

Motion #37

<u>Reproduction of Current Calendar Entry</u>	<u>Proposed revision with changes underlined and deletions indicated clearly</u>
<p>and Interface Design Engineering 3390—Introduction to Mechatronic Computer-Aided Product Development, Modelling and Simulation Engineering 3850—Engineering Applications of Numerical Methods Engineering 4350—Advanced Robotic Dynamics and Control</p> <p>Sustainable Energy focus area Fall Semester</p> <p>Engineering 3440—Introduction to Sustainable Energy Engineering Engineering 4330— Innovations in Biomedical Engineering</p> <p>Winter Semester Engineering 3490—Chemical Energy Conversion Engineering 3850—Engineering Applications of Numerical Methods Bioresources focus area</p> <p>Fall Semester</p> <p>Engineering 3540—Introduction to Bioresources Engineering Engineering 4330— Innovations in Biomedical Engineering</p> <p>Winter Semester</p> <p>Engineering 3570—Engineering Applications of Biological Materials Engineering 4550 (formerly 3590)—Chemical and Biological Processes Engineering 3850—Engineering Applications of Numerical Methods</p>	<p>Machinery</p> <ul style="list-style-type: none"> • Engineering 4550 - Chemical and Biological Biotechnological Processes • Engineering 4830 – Biomedical Signal Processing <p>* Technical Electives (Program Year 2, Term 4) Any two of the following technical electives may be taken in Program Year 2, Term 4: Engineering 2120—Geology for Engineers Engineering 2240—Introduction to Structural Engineering Engineering 2250—Materials Science Engineering 2350—Kinematics and Dynamics of Machines Engineering 2420—Fundamentals of Environmental Engineering Engineering 2430—Engineering Economics Engineering 2520—Fundamentals of Process Engineering Engineering 2620—Thermo Fluids II Engineering 2820—Electric Circuits II Computer Science 1610—Digital Systems **Engineering Focus Area Electives (Program Years 3 and 4)</p> <p>Mechatronics focus area Fall Semester</p> <p>Engineering 3340—Introduction to Mechatronics Engineering Engineering 4310—Advanced Fabrication Techniques and Computer Integrated Manufacturing Engineering 4330— Innovations in Biomedical Engineering</p> <p>Winter Semester</p> <p>Engineering 3370—Mechatronic System Integration and Interface Design Engineering 3390—Introduction to Mechatronic Computer Aided Product Development, Modelling and Simulation Engineering 3850—Engineering Applications of Numerical Methods Engineering 4350—Advanced Robotic Dynamics and Control</p> <p>Sustainable Energy focus area</p>

CALENDAR & CURRICULUM CHANGE

Motion #37

<u>Reproduction of Current Calendar Entry</u>	<u>Proposed revision with changes underlined and deletions indicated clearly</u>
	<p>Fall Semester</p> <p>Engineering 3440—Introduction to Sustainable Energy Engineering Engineering 4330—Innovations in Biomedical Engineering</p> <p>Winter Semester Engineering 3490—Chemical Energy Conversion Engineering 3850—Engineering Applications of Numerical Methods Bioresources focus area</p> <p>Fall Semester Engineering 3540—Introduction to Bioresources Engineering Engineering 4330—Innovations in Biomedical Engineering</p> <p>Winter Semester Engineering 3570—Engineering Applications of Biological Materials Engineering 4550 (formerly 3590)—Chemical and Biological Processes Engineering 3850—Engineering Applications of Numerical Methods</p>

Rationale for Change: To update the information as a result of the creation and deletion of courses, changes to course titles, the resequencing of courses, and changes to non-engineering course requirements.

Effective Date: September 2019

Implications for Other Programs: In order to add additional engineering-focused course content and to facilitate the re-sequencing of existing courses, it was necessary to create additional room in the program through the removal of PHYS 1110/1120, CHEM 1120 and STAT 1210. The relevant engineering content in these courses will be covered in the following newly created or revised courses: ENGN 1230; ENGN 1250; ENGN 2130; and ENGN 2810.

Impact on Students Currently Enrolled: None



CALENDAR & CURRICULUM CHANGE

Motion #37

Authorization	Date:
Departmental Approval: N/A	N/A
Faculty/School Approval: N/A	N/A
Faculty Dean's Approval: Dr. Nicholas Krouglicof	October 24, 2018
Graduate Studies Dean's Approval: N/A	N/A
Registrar's Office Approval: Pam McGuigan	November 15, 2018
APCC Meeting Date Approval	December 20, 2018

CALENDAR & CURRICULUM CHANGE

Motion #38

Revision is for a: **Cross-listing Change**

Faculty/School/Department: **Sustainable Design Engineering**

Department/Program(s)/Academic Regulations: **Master of Science in Sustainable Design Engineering**

MOTION: To approve a new cross-listing for ENGN 4310 (Advanced Fabrication Techniques and Computer-Integrated Manufacturing).

<u>Reproduction of Current Calendar Entry</u>	<u>Proposed revision with changes underlined and deletions indicated clearly</u>
<p>ENGN 4310 ADVANCED FABRICATION TECHNIQUES AND COMPUTER-INTEGRATED MANUFACTURING</p> <p>This course concentrates on manufacturing knowledge with a focus on advanced fabrication techniques (AFT) and Computer Integrated Manufacturing (CIM). Students will expand their knowledge of traditional processes including CAD/CAM, forming, welding, milling, etc. leading into innovative advanced fabrication techniques in additive and precision manufacturing, next generation electronics, robotics and smart automation (CIM), and sustainable and green manufacturing modeling and simulation in the manufacturing process developed through lectures and labs. Integration of CIM into supply chain design and management is emphasized based on synergistic application of mechatronics approach and philosophy. Three hours of lecture and three hours of lab per week</p>	<p><u>SDE 8310</u> ADVANCED FABRICATION TECHNIQUES AND COMPUTER-INTEGRATED MANUFACTURING</p> <p>This course concentrates on manufacturing knowledge with a focus on advanced fabrication techniques (AFT) and Computer Integrated Manufacturing (CIM). Students will expand their knowledge of traditional processes including CAD/CAM, forming, welding, milling, etc. leading into innovative advanced fabrication techniques in additive and precision manufacturing, next generation electronics, robotics and smart automation (CIM), and sustainable and green manufacturing modeling and simulation in the manufacturing process developed through lectures and labs. Integration of CIM into supply chain design and management is emphasized based on synergistic application of mechatronics approach and philosophy.</p> <p><u>Cross-listed with ENGN 4310; credit cannot be received for both courses.</u></p> <p>Three hours of lecture and three hours of lab per week.</p> <p><u>Graduate-level project will be required as defined in consultation with the instructor.</u></p>

Rationale for Change: To provide an option for Master of Science in Sustainable Design Engineering students to take an existing upper-level, undergraduate course to fulfill their course requirements in the graduate program.

Effective Date: September 2019

Implications for Other Programs: None

Impact on Students Currently Enrolled: The learning experience in lab and lectures will include graduate students.



CALENDAR & CURRICULUM CHANGE

Motion #38

<i>Authorization</i>	<i>Date:</i>
Departmental Approval: N/A	N/A
Faculty/School Approval: N/A	N/A
Faculty Dean's Approval: Dr. Nicholas Krouglicof	October 24, 2018
Graduate Studies Dean's Approval: Dr. Larry Hammell	November 9, 2018
Registrar's Office Approval: Pam McGuigan	November 19, 2018
APCC Meeting Date Approval	December 20, 2018

CALENDAR & CURRICULUM CHANGE

Motion #39

Revision is for a: **Cross-listing Change**

Faculty/School/Department: **Sustainable Design Engineering**

Department/Program(s)/Academic Regulations: **Master of Science in Sustainable Design Engineering**

MOTION: To approve a new cross-listing for ENGN 4320 Control System Design.

<u>Reproduction of Current Calendar Entry</u>	<u>Proposed revision with changes underlined and deletions indicated clearly</u>
<p>ENGN 4320 CONTROL SYSTEM DESIGN This course will provide students with an overview of system modelling and control methodologies of Single/multiple input/output systems, e.g., energy transport control, reactor control, heat exchanger control, power production, and mechatronic systems. Students will learn classical control methods e.g., feedforward, feedbacks, cascade, decoupling to modern control methods, LQR, predictive control, optimal and robust control. Students will be equipped with knowledge and skills for analyzing stability, controllability and observability of state-space representation modelled systems. Three hours of lecture and three hours of lab per week.</p>	<p><u>SDE 8320 CONTROL SYSTEM DESIGN</u> This course will provide students with an overview of system modelling and control methodologies of single/multiple input/output systems, e.g., energy transport control, reactor control, heat exchanger control, power production, and mechatronic systems. Students will learn classical control methods e.g., feedforward, feedbacks, cascade, decoupling to modern control methods, LQR, predictive control, optimal and robust control. Students will be equipped with knowledge and skills for analyzing stability, controllability and observability of state-space representation modelled systems. <u>Cross-listed with ENGN 4320; credit cannot be received for both courses.</u> Three hours of lecture and three hours of lab per week. <u>Graduate-level project will be required as defined in consultation with the instructor.</u></p>

Rationale for Change: To provide an option for Master of Science in Sustainable Design Engineering students to take an existing upper-level, undergraduate course to fulfill their course requirements in the graduate program.

Effective Date: September 2019

Implications for Other Programs: None

Impact on Students Currently Enrolled: The learning experience in lab and lectures will include graduate students.

Authorization	Date:
Departmental Approval: N/A	N/A
Faculty/School Approval: N/A	N/A
Faculty Dean's Approval: Dr. Nicholas Krouglicof	October 24, 2018
Graduate Studies Dean's Approval: Dr. Larry Hammell	November 9, 2018
Registrar's Office Approval: Pam McGuigan	November 19, 2018
APCC Meeting Date Approval	December 20, 2018



CALENDAR & CURRICULUM CHANGE

Motion #40

Revision is for a: **Cross-listing Change**

Faculty/School/Department: **Sustainable Design Engineering**

Department/Program(s)/Academic Regulations: **Master of Science in Sustainable Design Engineering**

MOTION: To approve a new cross-listing for ENGN 4350 Advanced Robotic Dynamics and Control.

<u>Reproduction of Current Calendar Entry</u>	<u>Proposed revision with changes underlined and deletions indicated clearly</u>
<p>ENGN 4350 ADVANCED ROBOTIC DYNAMICS AND CONTROL This course advances the fundamentals of robotics through exposure to in-depth knowledge and understanding of kinematics, dynamics, control and trajectory with applications to autonomous vehicles, automated manufacturing and processing and mobile robotics. Areas of interest include: position transformation and control, rigid body motion, kinematic control, compliance and force control. Three hours of lecture and three hours of lab per week</p>	<p><u>SDE 8350 ADVANCED ROBOTIC DYNAMICS AND CONTROL</u> This course advances the fundamentals of robotics through exposure to in-depth knowledge and understanding of kinematics, dynamics, control and trajectory with applications to autonomous vehicles, automated manufacturing and processing and mobile robotics. Areas of interest include: position transformation and control, rigid body motion, kinematic control, compliance and force control. <u>Cross-listed with ENGN 4350; credit cannot be received for both courses.</u> Three hours of lecture and three hours of lab per week. <u>Graduate-level project will be required as defined in consultation with the instructor.</u></p>

Rationale for Change: To provide an option for Master of Science in Sustainable Design Engineering students to take an existing upper-level, undergraduate course to fulfill their course requirements in the graduate program.

Effective Date: September 2019

Implications for Other Programs: None

Impact on Students Currently Enrolled: The learning experience in lab and lectures will include graduate students.

Authorization	Date:
Departmental Approval: N/A	N/A
Faculty/School Approval: N/A	N/A
Faculty Dean's Approval: Dr. Nicholas Krouglicof	October 24, 2018
Graduate Studies Dean's Approval: Dr. Larry Hammell	November 9, 2018
Registrar's Office Approval: Pam McGuigan	November 19, 2018
APCC Meeting Date Approval	December 20, 2018

CALENDAR & CURRICULUM CHANGE

Motion #41

Revision is for a: **Cross-listing Change**

Faculty/School/Department: **Sustainable Design Engineering**

Department/Program(s)/Academic Regulations: **Master of Science in Sustainable Design Engineering**

MOTION: To approve a new cross-listing for ENGN 4370 Fluid Power Control.

<u>Reproduction of Current Calendar Entry</u>	<u>Proposed revision with changes underlined and deletions indicated clearly</u>
<p>ENGN 4370 FLUID POWER CONTROL This course covers the analysis and design of basic hydraulic and pneumatic circuits and systems. Topics include a review of the fundamentals of fluid mechanics including flow through valves, fittings, and pipe; classification of hydrostatic pumps and motors; control valves; hydraulic accumulators; sizing of practical hydraulic circuits; thermal and energy considerations; electrohydraulic control and modeling of hydraulic control systems. The latter part of the course focuses on pneumatic systems including pneumatic cylinders and motors, control valves, and compressor technology. The application of Programmable Logic Controls (PLCs) to industrial automation and the sequential control of pneumatic actuators is also addressed. Three hours of lecture and three hours of lab per week.</p>	<p><u>SDE 8370 FLUID POWER CONTROL</u> This course covers the analysis and design of basic hydraulic and pneumatic circuits and systems. Topics include a review of the fundamentals of fluid mechanics including flow through valves, fittings, and pipe; classification of hydrostatic pumps and motors; control valves; hydraulic accumulators; sizing of practical hydraulic circuits; thermal and energy considerations; electrohydraulic control and modeling of hydraulic control systems. The latter part of the course focuses on pneumatic systems including pneumatic cylinders and motors, control valves, and compressor technology. The application of Programmable Logic Controls (PLCs) to industrial automation and the sequential control of pneumatic actuators is also addressed. <u>Cross-listed with ENGN 4370; credit cannot be received for both courses.</u> Three hours of lecture and three hours of lab per week. <u>Graduate-level project will be required as defined in consultation with the instructor.</u></p>

Rationale for Change: To provide an option for Master of Science in Sustainable Design Engineering students to take an existing upper-level, undergraduate course to fulfill their course requirements in the graduate program.

Effective Date: September 2019

Implications for Other Programs: None

Impact on Students Currently Enrolled: The learning experience in lab and lectures will include graduate students.

Authorization	Date:
Departmental Approval: N/A	N/A
Faculty/School Approval: N/A	N/A
Faculty Dean's Approval: Dr. Nicholas Krouglicof	October 24, 2018
Graduate Studies Dean's Approval: Dr. Larry Hammell	November 9, 2018
Registrar's Office Approval: Pam McGuigan	November 19, 2018
APCC Meeting Date Approval	December 20, 2018

CALENDAR & CURRICULUM CHANGE

Motion #42

Revision is for a: **Cross-listing Change**

Faculty/School/Department: **Sustainable Design Engineering**

Department/Program(s)/Academic Regulations: **Master of Science in Sustainable Design Engineering**

MOTION: To approve a new cross-listing for ENGN 4410 Macro Energy Systems.

<u>Reproduction of Current Calendar Entry</u>	<u>Proposed revision with changes underlined and deletions indicated clearly</u>
<p>ENGN 4410 MACRO ENERGY SYSTEMS This course covers methods for analyzing energy supply, conversion processes, and end-use at the system level. Aspects considered include the dynamics of energy supply and demand, efficiencies of energy conversion, characteristics of energy currencies, and energy needs across different sectors. Students will characterize methods of delivering energy services such as heat, light, industrial power and transportation. Exergy analysis will be introduced and used to build a quantitative framework for integrating techno-economic analysis of energy system components, with emphasis on elements such as fossil fuels and nuclear power. Students will gain an enhanced, quantitative appreciation for the sustainability, emissions, cost and energy intensity aspects of energy services delivery. Three hours of lecture and three hours of lab per week.</p>	<p><u>SDE 8410</u> MACRO ENERGY SYSTEMS This course covers methods for analyzing energy supply, conversion processes, and end-use at the system level. Aspects considered include the dynamics of energy supply and demand, efficiencies of energy conversion, characteristics of energy currencies, and energy needs across different sectors. Students will characterize methods of delivering energy services such as heat, light, industrial power and transportation. Exergy analysis will be introduced and used to build a quantitative framework for integrating techno-economic analysis of energy system components, with emphasis on elements such as fossil fuels and nuclear power. Students will gain an enhanced, quantitative appreciation for the sustainability, emissions, cost and energy intensity aspects of energy services delivery. <u>Cross-listed with ENGN 4410; credit cannot be received for both courses.</u> Three hours of lecture and three hours of lab per week. <u>Graduate-level project will be required as defined in consultation with the instructor.</u></p>

Rationale for Change: To provide an option for Master of Science in Sustainable Design Engineering students to take an existing upper-level, undergraduate course to fulfill their course requirements in the graduate program.

Effective Date: September 2019

Implications for Other Programs: None

Impact on Students Currently Enrolled: The learning experience in lab and lectures will include graduate students.

Authorization	Date:
Departmental Approval: N/A	N/A
Faculty/School Approval: N/A	N/A
Faculty Dean's Approval: Dr. Nicholas Krouglicof	October 24, 2018
Graduate Studies Dean's Approval: Dr. Larry Hammell	November 9, 2018
Registrar's Office Approval: Pam McGuigan	November 19, 2018
APCC Meeting Date Approval	December 20, 2018

CALENDAR & CURRICULUM CHANGE

Motion #43

Revision is for a: **Cross-listing Change**

Faculty/School/Department: **Sustainable Design Engineering**

Department/Program(s)/Academic Regulations: **Master of Science in Sustainable Design Engineering**

MOTION: To approve a new cross-listing for ENGN 4440 Advanced Energy Storage.

Reproduction of Current Calendar Entry	Proposed revision with changes underlined and deletions indicated clearly
<p>ENGN 4440 ADVANCED ENERGY STORAGE This course considers advanced technical analysis of energy storage systems. A comprehensive overview of all industrially relevant energy storage systems is reviewed and emphasis is placed on promising energy storage technologies of the future. Chemical, thermal and kinetic storage technologies will be discussed in detail. Three hours of lecture and three hours of lab per week</p>	<p><u>SDE 8440</u> ADVANCED ENERGY STORAGE This course considers advanced technical analysis of energy storage systems. A comprehensive overview of all industrially relevant energy storage systems is reviewed and emphasis is placed on promising energy storage technologies of the future. Chemical, thermal and kinetic storage technologies will be discussed in detail. <u>Cross-listed with ENGN 4440; credit cannot be received for both courses.</u> Three hours of lecture and three hours of lab per week. <u>Graduate-level project will be required as defined in consultation with the instructor.</u></p>

Rationale for Change: To provide an option for Master of Science in Sustainable Design Engineering students to take an existing upper-level, undergraduate course to fulfill their course requirements in the graduate program.

Effective Date: September 2019

Implications for Other Programs: None

Impact on Students Currently Enrolled: The learning experience in lab and lectures will include graduate students.

Authorization	Date:
Departmental Approval: N/A	N/A
Faculty/School Approval: N/A	N/A
Faculty Dean's Approval: Dr. Nicholas Krouglicof	October 24, 2018
Graduate Studies Dean's Approval: Dr. Larry Hammell	November 9, 2018
Registrar's Office Approval: Pam McGuigan	November 19, 2018
APCC Meeting Date Approval	December 20, 2018

CALENDAR & CURRICULUM CHANGE

Motion #44

Revision is for a: **Cross-listing Change**

Faculty/School/Department: **Sustainable Design Engineering**

Department/Program(s)/Academic Regulations: **Master of Science in Sustainable Design Engineering**

MOTION: To approve a new cross-listing for ENGN 4450 Fluid Loads on Energy Structures.

<u>Reproduction of Current Calendar Entry</u>	<u>Proposed revision with changes underlined and deletions indicated clearly</u>
<p>ENGN 4450 FLUID LOADS ON ENERGY STRUCTURES</p> <p>This course is an introduction to the loads applied on structures from wind, waves, and currents, and their heightened relevance to structures designed for energy conversion. Phenomena to be discussed include lift and drag, boundary layers, vortex-induced vibrations, wakes, hydrostatic loading, and water waves. A selection of engineering methods will be introduced and brought to bear on these topics, such as potential flow theory, blade-element theory, Airy wave theory and Morison's equation. Dimensional analysis will be introduced to characterize flow problems. Design implications will be discussed for a selection of relevant energy conversion structures such as aircraft wings, wind turbines, breakwaters, marine vessels, and offshore energy platforms.</p> <p>Three hours of lecture and three hours of lab per week</p>	<p><u>SDE 8450</u> FLUID LOADS ON ENERGY STRUCTURES</p> <p>This course is an introduction to the loads applied on structures from wind, waves, and currents, and their heightened relevance to structures designed for energy conversion. Phenomena to be discussed include lift and drag, boundary layers, vortex-induced vibrations, wakes, hydrostatic loading, and water waves. A selection of engineering methods will be introduced and brought to bear on these topics, such as potential flow theory, blade-element theory, Airy wave theory and Morison's equation. Dimensional analysis will be introduced to characterize flow problems. Design implications will be discussed for a selection of relevant energy conversion structures such as aircraft wings, wind turbines, breakwaters, marine vessels, and offshore energy platforms.</p> <p><u>Cross-listed with ENGN 4450; credit cannot be received for both courses.</u></p> <p>Three hours of lecture and three hours of lab per week.</p> <p><u>Graduate-level project will be required as defined in consultation with the instructor.</u></p>

Rationale for Change: To provide an option for Master of Science in Sustainable Design Engineering students to take an existing upper-level, undergraduate course to fulfill their course requirements in the graduate program.

Effective Date: September 2019

Implications for Other Programs: None

Impact on Students Currently Enrolled: The learning experience in lab and lectures will include graduate students.

Authorization	Date:
Departmental Approval: N/A	N/A
Faculty/School Approval: N/A	N/A
Faculty Dean's Approval: Dr. Nicholas Krouglicof	October 24, 2018
Graduate Studies Dean's Approval: Dr. Larry Hammell	November 9, 2018
Registrar's Office Approval: Pam McGuigan	November 19, 2018
APCC Meeting Date Approval	December 20, 2018

CALENDAR & CURRICULUM CHANGE

Motion #45

Revision is for a: **Cross-listing Change**

Faculty/School/Department: **Sustainable Design Engineering**

Department/Program(s)/Academic Regulations: **Master of Science in Sustainable Design Engineering**

MOTION: To approve a new cross-listing for ENGN 4470 Micro Grids.

<u>Reproduction of Current Calendar Entry</u>	<u>Proposed revision with changes underlined and deletions indicated clearly</u>
<p>ENGN 4470 MICRO GRIDS This course focuses on the concept, operation and optimization of renewable-energy-based micro-grids. Concepts introduced and considered include renewable energy resources, integration technologies, grid-connected operation, islanded grid operation, energy storage integration and the optimal dimensioning and mixing of multiple energy sources where some are stochastic in nature and some are dispatchable. Existing and future energy storage technologies will be also be discussed. This course is based on energy flow analysis and makes extensive use of software simulation tools. Students will develop a framework for performing techno-economic assessments of micro-grid architectures and designs. A strong background in electrical power systems is not necessarily required. Three hours of lecture and three hours of lab per week</p>	<p><u>SDE 8470 MICRO GRIDS</u> This course focuses on the concept, operation and optimization of renewable-energy-based micro-grids. Concepts introduced and considered include renewable energy resources, integration technologies, grid-connected operation, islanded grid operation, energy storage integration and the optimal dimensioning and mixing of multiple energy sources where some are stochastic in nature and some are dispatchable. Existing and future energy storage technologies will be also be discussed. This course is based on energy flow analysis and makes extensive use of software simulation tools. Students will develop a framework for performing techno-economic assessments of micro-grid architectures and designs. A strong background in electrical power systems is not necessarily required. <u>Cross-listed with ENGN 4470; credit cannot be received for both courses.</u> Three hours of lecture and three hours of lab per week. <u>Graduate-level project will be required as defined in consultation with the instructor.</u></p>

Rationale for Change: To provide an option for Master of Science in Sustainable Design Engineering students to take an existing upper-level, undergraduate course to fulfill their course requirements in the graduate program.

Effective Date: September 2019

Implications for Other Programs: None

Impact on Students Currently Enrolled: The learning experience in lab and lectures will include graduate students.

<i>Authorization</i>	<i>Date:</i>
Departmental Approval: N/A	N/A
Faculty/School Approval: N/A	N/A
Faculty Dean's Approval: Dr. Nicholas Krouglicof	October 24, 2018
Graduate Studies Dean's Approval: Dr. Larry Hammell	November 9, 2018
Registrar's Office Approval: Pam McGuigan	November 19, 2018
APCC Meeting Date Approval	December 20, 2018

CALENDAR & CURRICULUM CHANGE

Motion #46

Revision is for a: **Cross-listing Change**

Faculty/School/Department: **Sustainable Design Engineering**

Department/Program(s)/Academic Regulations: **Master of Science in Sustainable Design Engineering**

MOTION: To approve a new cross-listing for ENGN 4510 Geoinformatics in Bioresources.

<u>Reproduction of Current Calendar Entry</u>	<u>Proposed revision with changes underlined and deletions indicated clearly</u>
<p>ENGN 4510 GEOINFORMATICS IN BIORESOURCES</p> <p>This course covers the theory and practice of geoinformatics and their applications to problems in bioresources using digital mapping and spatial analysis. Hands on laboratories will provide students with an experience to collect georeferenced data using differential global positioning system, followed by mapping and analysis in geographical information system. Topics include datums, map projections and transformations, vector and raster data, geo-spatial analysis, geo-statistics and interpolation techniques. This course will also cover the fundamentals of remote sensing, data collection with sensors, and spatial and temporal aspects of the bio-resources attributes. Three hours of lecture and three hours of lab per week.</p>	<p><u>SDE 8510</u> GEOINFORMATICS IN BIORESOURCES</p> <p>This course covers the theory and practice of geoinformatics and their applications to problems in bioresources using digital mapping and spatial analysis. Hands on laboratories will provide students with an experience to collect georeferenced data using differential global positioning system, followed by mapping and analysis in geographical information system. Topics include datums, map projections and transformations, vector and raster data, geo-spatial analysis, geo-statistics and interpolation techniques. This course will also cover the fundamentals of remote sensing, data collection with sensors, and spatial and temporal aspects of the bio-resources attributes. <u>Cross-listed with ENGN 4510; credit cannot be received for both courses.</u> Three hours of lecture and three hours of lab per week. <u>Graduate-level project will be required as defined in consultation with the instructor.</u></p>

Rationale for Change: To provide an option for Master of Science in Sustainable Design Engineering students to take an existing upper-level, undergraduate course to fulfill their course requirements in the graduate program.

Effective Date: September 2019

Implications for Other Programs: None

Impact on Students Currently Enrolled: The learning experience in lab and lectures will include graduate students.

Authorization	Date:
Departmental Approval: N/A	N/A
Faculty/School Approval: N/A	N/A
Faculty Dean's Approval: Dr. Nicholas Krouglicof	October 24, 2018
Graduate Studies Dean's Approval: Dr. Larry Hammell	November 9, 2018
Registrar's Office Approval: Pam McGuigan	November 19, 2018
APCC Meeting Date Approval	December 20, 2018

CALENDAR & CURRICULUM CHANGE

Motion #47

Revision is for a: **Cross-listing Change**

Faculty/School/Department: **Sustainable Design Engineering**

Department/Program(s)/Academic Regulations: **Master of Science in Sustainable Design Engineering**

MOTION: To approve a new cross-listing for ENGN 4530 Fundamentals of Agriculture Machinery.

<u>Reproduction of Current Calendar Entry</u>	<u>Proposed revision with changes underlined and deletions indicated clearly</u>
<p>ENGN 4530 FUNDAMENTALS OF AGRICULTURE MACHINERY</p> <p>This course highlights the fundamentals of mechanized agriculture machinery from soil preparation, planting, and crop management to mechanical harvesting. The machines and their unit operation are analyzed with respect functions, work rates, material flow and power usage. The machine performance relating to work quality and environmental effects will also be evaluated. The labs will emphasize on safety, basic maintenance, adjustment, calibrations of equipment and performance testing. This course also covers the variable rate applicators for site-specific application of inputs, auto guidance system, data acquisition and management for intelligent decision making for machines, and precision agriculture technologies. Three hours of lecture and three hours of lab per week</p>	<p><u>SDE 8530 FUNDAMENTALS OF AGRICULTURE MACHINERY</u></p> <p>This course highlights the fundamentals of mechanized agriculture machinery from soil preparation, planting, and crop management to mechanical harvesting. The machines and their unit operation are analyzed with respect functions, work rates, material flow and power usage. The machine performance relating to work quality and environmental effects will also be evaluated. The labs will emphasize on safety, basic maintenance, adjustment, calibrations of equipment and performance testing. This course also covers the variable rate applicators for site-specific application of inputs, auto guidance system, data acquisition and management for intelligent decision making for machines, and precision agriculture technologies.</p> <p><u>Cross-listed with ENGN 4530; credit cannot be received for both courses.</u></p> <p>Three hours of lecture and three hours of lab per week.</p> <p><u>Graduate-level project will be required as defined in consultation with the instructor.</u></p>

Rationale for Change: To provide an option for Master of Science in Sustainable Design Engineering students to take an existing upper-level, undergraduate course to fulfill their course requirements in the graduate program.

Effective Date: September 2019

Implications for Other Programs: None

Impact on Students Currently Enrolled: The learning experience in lab and lectures will include graduate students.

Authorization	Date:
Departmental Approval: N/A	N/A
Faculty/School Approval: N/A	N/A
Faculty Dean's Approval: Dr. Nicholas Krouglicof	October 24, 2018
Graduate Studies Dean's Approval: Dr. Larry Hammell	November 9, 2018
Registrar's Office Approval: Pam McGuigan	November 19, 2018
APCC Meeting Date Approval	December 20, 2018

CALENDAR & CURRICULUM CHANGE

Motion #48

Revision is for a: **Cross-listing Change**

Faculty/School/Department: **Sustainable Design Engineering**

Department/Program(s)/Academic Regulations: **Master of Science in Sustainable Design Engineering**

MOTION: To approve a new cross-listing for ENGN 4550 Chemical and Biological Processes.

<u>Reproduction of Current Calendar Entry</u>	<u>Proposed revision with changes underlined and deletions indicated clearly</u>
<p>ENGN 4550 CHEMICAL AND BIOLOGICAL PROCESSES</p> <p>Processes used in the chemical and biological industries, which emphasize underlying physical, chemical, and biological principles, will be introduced. By carrying out the mass and energy balances, student will conduct design and economic assessment of major chemical and biological engineering processes. Introduction to modelling of chemical processes will be covered in this course. (Formerly ENGN-3590) Three hours of lecture and three hours of lab per week</p>	<p><u>SDE 8550 CHEMICAL AND BIOLOGICAL PROCESSES</u></p> <p>Processes used in the chemical and biological industries, which emphasize underlying physical, chemical, and biological principles, will be introduced. By carrying out the mass and energy balances, students will conduct design and economic assessment of major chemical and biological engineering processes. Introduction to modelling of chemical processes will be covered in this course. (Formerly ENGN-3590)</p> <p><u>Cross-listed with ENGN 4550; credit cannot be received for both courses.</u></p> <p>Three hours of lecture and three hours of lab per week. <u>Graduate-level project will be required as defined in consultation with the instructor.</u></p>

Rationale for Change: To provide an option for Master of Science in Sustainable Design Engineering students to take an existing upper-level, undergraduate course to fulfill their course requirements in the graduate program.

Effective Date: September 2019

Implications for Other Programs: None

Impact on Students Currently Enrolled: The learning experience in lab and lectures will include graduate students.

Authorization	Date:
Departmental Approval: N/A	N/A
Faculty/School Approval: N/A	N/A
Faculty Dean's Approval: Dr. Nicholas Krouglicof	October 24, 2018
Graduate Studies Dean's Approval: Dr. Larry Hammell	November 9, 2018
Registrar's Office Approval: Pam McGuigan	November 19, 2018
APCC Meeting Date Approval	December 20, 2018

CALENDAR & CURRICULUM CHANGE

Motion #49

Revision is for a: **Cross-listing Change**

Faculty/School/Department: **Sustainable Design Engineering**

Department/Program(s)/Academic Regulations: **Master of Science in Sustainable Design Engineering**

MOTION: To approve a new cross-listing for ENGN 4830 Biomedical Signal Processing.

<u>Reproduction of Current Calendar Entry</u>	<u>Proposed revision with changes underlined and deletions indicated clearly</u>
<p>ENGN 4830 BIOMEDICAL SIGNAL PROCESSING</p> <p>This course is an introduction to the basics of viewing, processing, and analyzing of biosignals, or signals originating from living beings. Biosignals may be characterized as bioelectrical signals which can be composed of both electrical and non-electrical parts. Topics include both linear and nonlinear systems, signal conditioning or filtering, improving signal quality (signal-to-noise ratio) through averaging techniques, and signal representations in both the time and frequency domains.</p> <p>PREREQUISITE: Engineering 3220</p> <p>Three lecture hours and three lab hours per week</p>	<p><u>SDE 8830 BIOMEDICAL SIGNAL PROCESSING</u></p> <p>This course is an introduction to the basics of viewing, processing, and analyzing of biosignals, or signals originating from living beings. Biosignals may be characterized as bioelectrical signals which can be composed of both electrical and non-electrical parts. Topics include both linear and nonlinear systems, signal conditioning or filtering, improving signal quality (signal-to-noise ratio) through averaging techniques, and signal representations in both the time and frequency domains.</p> <p><u>Cross-listed with ENGN 4830; credit cannot be received for both courses.</u></p> <p>Three lecture hours and three lab hours per week</p> <p><u>Graduate-level project will be required as defined in consultation with the instructor.</u></p>

Rationale for Change: To provide an option for Master of Science in Sustainable Design Engineering students to take an existing upper-level, undergraduate course to fulfill their course requirements in the graduate program.

Effective Date: September 2019

Implications for Other Programs: None

Impact on Students Currently Enrolled: The learning experience in lab and lectures will include graduate students.

<i>Authorization</i>	<i>Date:</i>
Departmental Approval: N/A	N/A
Faculty/School Approval: N/A	N/A
Faculty Dean's Approval: Dr. Nicholas Krouglicof	October 24, 2018
Graduate Studies Dean's Approval: Dr. Larry Hammell	November 9, 2018
Registrar's Office Approval: Pam McGuigan	November 19, 2018
APCC Meeting Date Approval	December 20, 2018

Summary of Faculty of Science Motion #'s 50-64

LIBRARY RESOURCE REQUIREMENTS - SDE 8310, ENGN 8320, ENGN 8350, ENGN 8370, ENGN 8410, ENGN 8440, ENGN 8450, ENGN 8470, ENGN 8510, ENGN 8530, ENGN 8550, ENGN 8830

This requirement applies to the cross-listing of 12 undergraduate courses as graduate courses for the Master of Science in Sustainable Design Engineering. Courses are SDE 8310, ENGN 8320, ENGN 8350, ENGN 8370, ENGN 8410, ENGN 8440, ENGN 8450, ENGN 8470, ENGN 8510, ENGN 8530, ENGN 8550, ENGN 8830.

Library Resource Requirements *(to be completed by the liaison and/or collections librarian)*

It is anticipated that many of the graduate-level assignments for these courses will require additional monographs support, such as handbooks and standards. These types of resources typically need to be refreshed as new editions are published every few years. Site-licenses for standards, which are the appropriate licenses for a library collection, are significantly more expensive than private copies and increase in cost yearly. Likewise, these graduate courses are dependent on the subscriptions purchased for the undergraduate program and there is no built-in annual percentage increase in that budget.

Given the expectations of graduate level work and the need for sustainability the Library is requesting \$5,000 annually, along with an 4% annual increase to cover anticipated increases for these courses.

Summary of additional budget allocation required:

- One-time: _____ For each of _____ consecutive years
- Annual: \$5000.00
 - Per-year percentage increase in annual: 4%

Does the budget allocation for library resources in this proposal meet the requirement? Yes

Date Received by Liaison/Collections Librarian	December 13, 2018
Name of Librarian to be Contacted for Questions	Rosie Le Faive
Approved by University Librarian or Designate - Name	Donald Moses
Date Approved by UL or Designate	December 17, 2018

Summary of Faculty of Science Motion #'s 50-64

Summary of Calendar & Curriculum Changes for the Faculty of Science

As of November 16, 2018

Applied Human Sciences

- Course title change and revisions to FN 1010
- Course revisions to FN 3820
- Revisions to the calendar entries for the Foods and Nutrition Minor, Major, Dietetic Option, and the Honours program as a result of changes to FN 1010

Biology

- BIO 4050 and STAT 1910 as options for fourth-year core courses for the Paramedicine Program
- Revisions to the course sequence listing for the Paramedicine Program.

Chemistry

- New courses MMS 8140 and CHEM 4140 cross-listed with each other.
- CHEM 4690 (existing) cross-listed with MMS 8690 (new).
- MMS 8090 (existing) revised and cross-listed with CHEM 4090 (new)
- MMS 8050 (existing) revised and cross-listed with CHEM 4050 (new).

Environmental Studies

- Cross-list ESC 8020 with ENV 4330.

Physics

- Revisions to the course descriptions for PHYS 1110 and PHYS 1120.

CALENDAR & CURRICULUM CHANGE

MOTION #50

Revision is for a: **Course Description Change**

Faculty/School/Department: **Science**

Department/Program(s)/Academic Regulations: **Applied Human Sciences**

MOTION: That the course title and description for FN 1010 Nutrition for Living be approved as proposed.

Reproduction	Revised
<p>FN-1010 Nutrition for Living This course is an introduction to the study of nutrition as it relates to health and health promotion. Topics include factors influencing food use; personal dietary assessment and selection of a healthy diet; nutrition labels; nutrition and physical activity; nutrition throughout the life cycle; and prevention of chronic disease. Three lecture hours NOTE: This course is designed primarily for non-Foods and Nutrition or Family Science majors who will not be taking advanced courses in Nutrition. Credit will NOT be allowed for F-N 1010 if completed after F-N 2110 and credit will NOT be allowed for F-N 1010 if a student has already received credit for F-N 1020. 3 hours credit</p>	<p>FN-1010 Nutrition for Living- <u>Concepts and Controversies in Nutrition</u> This course is an introduction <u>introduces students</u> to the study <u>science of nutrition through an exploration of contemporary issues relevant to nutrition and health.</u> <u>Emphasis will be placed on health promotion and disease prevention using an evidence-based approach to understand and evaluate current nutrition controversies, as it relates to health</u> the promotion of health promotion and prevention of chronic disease. <u>Topics include factors influencing food use; personal dietary assessment and selection of a healthy diet, nutrition labels, nutrition and physical activity, disordered eating, and Global and Indigenous food security and nutrition throughout the life cycle; and prevention of chronic disease.</u> Three lecture hours NOTE: This course is designed both for those majoring in Foods and Nutrition as well as for non-Foods and Nutrition or Family Science majors who will not be taking advanced courses in Nutrition. Credit will NOT be allowed for F N 1010 if completed after F N 2110 and credit will NOT be allowed for F N 1010 if a student has already received credit for F N 1020. 3 hours credit</p>

Rationale for Change: FN 1010 has traditionally been offered to non-Foods & Nutrition majors and Foods & Nutrition majors provided that the latter take it prior to FN 2110. Given that there is a lack of nutrition courses in first year, this will now be required for Foods & Nutrition majors but will remain open to non-majors. The content has evolved to a more issue based focus, including nutrition controversies, so the title and description better reflect current practice.

Effective Date: May 2019

Implications for Other Programs: None

Impact on Students Currently Enrolled: None

Authorization	Date:
Departmental Approval: Dany MacDonald	October 25, 2018
Faculty/School Approval: Science Council	November 5, 2018
Faculty Dean's Approval: Kathy Gottschall-Pass	November 5, 2018
Graduate Studies Dean's Approval: N/A	N/A
Registrar's Office Approval: Pam McGuigan	November 19, 2018
APCC Meeting Date Approval	December 20, 2018

CALENDAR & CURRICULUM CHANGE

MOTION #51

Revision is for a: **Pre-requisite Addition/Change**

Faculty/School/Department: **Science**

Department/Program(s)/Academic Regulations: **Applied Human Sciences**

MOTION: That the pre-requisite change for FN 3820 be approved as proposed.

<u>Reproduction</u>	<u>Revised</u>
<p>FN-3820 Program Planning and Evaluation In this course, students develop competency in planning, implementing, and evaluating programs for health promotion and family education. Topics include theories and models commonly used for program planning and behaviour change, assessing needs, selecting appropriate intervention strategies, identification and allocation of resources, the marketing process, and evaluation models and design. (Cross-listed with Family Science/Kinesiology 3820) Three lecture hours and the development, implementation and evaluation of a program. PREREQUISITE: Completion of required second year Foods and Nutrition courses or permission of the instructor. 3 hours credit</p>	<p>FN-3820 Program Planning and Evaluation In this course, students develop competency in planning, implementing, and evaluating programs for health promotion and family education. Topics include theories and models commonly used for program planning and behaviour change, assessing needs, selecting appropriate intervention strategies, identification and allocation of resources, the marketing process, and evaluation models and design. (Cross-listed with Family Science/Kinesiology 3820) Three lecture hours and the development, implementation and evaluation of a program. PREREQUISITE: Completion of required second year Foods and Nutrition courses <u>FN 2120</u> or permission of the instructor. 3 hours credit</p>

Rationale for Change: This will create consistency in the pre-requisite across sections of the course.

Effective Date: May 2019

Implications for Other Programs: None

Impact on Students Currently Enrolled: None

Authorization	Date:
Departmental Approval: Dany MacDonald	September 25, 2018
Faculty/School Approval: Science Council	November 5, 2018
Faculty Dean's Approval: Kathy Gottschall-Pass	November 5, 2018
Graduate Studies Dean's Approval: N/A	N/A
Registrar's Office Approval: Pam McGuigan	November 19, 2018
APCC Meeting Date Approval	December 20, 2018

CALENDAR & CURRICULUM CHANGE

MOTION #52

Revision is for a: **Calendar Entry Change**

Faculty/School/Department: **Science**

Department/Program(s)/Academic Regulations: **Applied Human Sciences**

MOTION: To approve the proposed changes to the Foods and Nutrition Minor.

<u>Reproduction</u>	<u>Revised</u>
<p>Students in the Minors Program in Foods and Nutrition must complete a total of 21 semester hours of credit in Foods and Nutrition. These consist of 9 semester hours of required core courses as follows:</p> <ul style="list-style-type: none"> • Foods and Nutrition 1110 Introductory Foods • Foods and Nutrition 2110 Introductory Nutrition I • Foods and Nutrition 2120 Introductory Nutrition II <p>Twelve additional hours of electives must be chosen at the 2000, 3000, or 4000 level. Students intending to do a Minor in Foods and Nutrition are advised to consult with the Chair of the Department of Applied Human Sciences to ensure that they have the required course prerequisites. A student majoring in Family Science is eligible to pursue the Foods and Nutrition Minor.</p>	<p>Students in the Minors Program in Foods and Nutrition must complete a total of 21 semester hours of credit in Foods and Nutrition. These consist of 9 <u>12</u> semester hours of required core courses as follows:</p> <ul style="list-style-type: none"> • <u>Foods and Nutrition 1010 Concepts and Controversies in Nutrition</u> • Foods and Nutrition 1110 Introductory Foods • Foods and Nutrition 2110 Introductory Nutrition I • Foods and Nutrition 2120 Introductory Nutrition II <p>Twelve <u>Nine</u> additional hours of electives must be chosen at the 2000, 3000, or 4000 level. Students intending to do a Minor in Foods and Nutrition are advised to consult with the Chair of the Department of Applied Human Sciences to ensure that they have the required course prerequisites. A student majoring in Family Science is eligible to pursue the Foods and Nutrition Minor.</p>

Rationale for Change: This change will align with the changes proposed to the FN Major which now includes FN 1010 as a required course for FN Majors

Effective Date: September 2019

Implications for Other Programs: None

Impact on Students Currently Enrolled: None

<u>Authorization</u>	<u>Date:</u>
Departmental Approval: Dany MacDonald	October 25, 2018
Faculty/School Approval: Science Council	November 5, 2018
Faculty Dean's Approval: Kathy Gottschall-Pass	November 5, 2018
Graduate Studies Dean's Approval: N/A	N/A
Registrar's Office Approval: Pam McGuigan	November 19, 2018
APCC Meeting Date Approval	December 20, 2018

CALENDAR & CURRICULUM CHANGE

MOTION #53

Revision is for a: **Calendar Entry Change**

Faculty/School/Department: Science

Department/Program(s)/Academic Regulations: **Applied Human Sciences**

MOTION: To approve the proposed changes to the Foods and Nutrition Major.

<u>Reproduction</u>	<u>Revised</u>
<p>REQUIREMENTS FOR A MAJOR IN FOODS & NUTRITION</p>	<p>REQUIREMENTS FOR A MAJOR IN FOODS & NUTRITION</p>
<p>Students following this degree program must complete 42 semester hours of required courses in Foods and Nutrition.</p>	<p>Students following this degree program must complete 42 semester hours of required courses in Foods and Nutrition.</p>
<p>REQUIRED COURSES FOR FOODS AND NUTRITION MAJOR</p>	<p>REQUIRED COURSES FOR FOODS AND NUTRITION MAJOR</p>
<p><i>Foods and Nutrition</i> 1110 Introductory Foods 2110 Introductory Nutrition I 2120 Introductory Nutrition II 2230 Determinants of Dietary Behaviour 2610 Communications 3020 Advanced Foods 3310 Introduction to Research Methods 3510 Nutritional Assessment 3520 Clinical Nutrition I 3820 Program Planning & Evaluation 4120 Human Metabolism 4340 Community Nutrition Two Foods and Nutrition electives at the 3000 or 4000 level</p>	<p><i>Foods and Nutrition</i> <u>1010 Concepts and Controversies in Nutrition</u> 1110 Introductory Foods 2110 Introductory Nutrition I 2120 Introductory Nutrition II 2230 Determinants of Dietary Behaviour 2610 Communications 3020 Advanced Foods 3310 Introduction to Research Methods 3510 Nutritional Assessment 3520 Clinical Nutrition I 3820 Program Planning & Evaluation 4120 Human Metabolism 4340 Community Nutrition <u>One Two</u> Foods and Nutrition electives at the 3000 or 4000 level</p>
<p>REQUIRED COURSES FROM OTHER DEPARTMENTS</p>	<p>REQUIRED COURSES FROM OTHER DEPARTMENTS</p>
<p><i>Mathematics</i> 1110 Finite Mathematics or 1120 Calculus for the Managerial, Social and Life Sciences</p>	<p><i>Mathematics</i> 1110 Finite Mathematics or 1120 Calculus for the Managerial, Social and Life Sciences</p>
<p><i>Statistics</i> 1210 (formerly STAT 2210) Introductory Statistics</p>	<p><i>Statistics</i> 1210 (formerly STAT 2210) Introductory Statistics</p>
<p><i>Chemistry</i> 1110 General Chemistry I 1120 General Chemistry II 2430 Organic Chemistry for the Life Sciences 3530 Biochemistry</p>	<p><i>Chemistry</i> 1110 General Chemistry I 1120 General Chemistry II 2430 Organic Chemistry for the Life Sciences 3530 Biochemistry</p>
<p><i>Biology</i></p>	<p><i>Biology</i></p>

CALENDAR & CURRICULUM CHANGE

MOTION #53

<p>1220 Human Physiology 1310 Introduction to Cell and Molecular Biology 2060 Microbial Diversity</p> <p>Business 1710 Organizational Behaviour</p> <p>Social Sciences Two 3 semester hour courses</p> <p>UPEI courses and Writing Intensive Course One of: UPEI 1010 – Writing Studies – Engaging Writing, Rhetoric, and Communication, UPEI 1020 – Inquiry Studies – Engaging Ideas and Cultural Contexts, OR UPEI 1030 – University Studies - Engaging University Contexts and Experience AND One writing intensive course</p> <p>COURSE SEQUENCE Following is the usual sequence for completion of courses:</p> <p>First Year</p> <ul style="list-style-type: none"> • Foods and Nutrition 1110 Introductory Foods • Biology 1220 Human Physiology • Biology 1310 Introduction to Cell and Molecular Biology • Chemistry 1110 General Chemistry I • Chemistry 1120 General Chemistry II • One of UPEI 1010, 1020 or 1030 • Math 1110 Finite Mathematics OR Math 1120 Calculus for the Managerial, Social and Life Sciences • Two 3 semester hours Social Science • One free elective <p>Second Year</p> <ul style="list-style-type: none"> • Foods and Nutrition 2110 Introductory Nutrition I • Foods and Nutrition 2120 Introductory Nutrition II • Foods and Nutrition 2230 Determinants of Dietary Behaviour • Foods and Nutrition 2610 Communications • Biology 2060 Microbial Diversity 	<p>1220 Human Physiology 1310 Introduction to Cell and Molecular Biology 2060 Microbiology at Diversity</p> <p>Business 1710 Organizational Behaviour</p> <p>Social Sciences Two 3 semester hour courses</p> <p>UPEI courses and Writing Intensive Course One of: UPEI 1010 – Writing Studies – Engaging Writing, Rhetoric, and Communication, UPEI 1020 – Inquiry Studies – Engaging Ideas and Cultural Contexts, OR UPEI 1030 – University Studies - Engaging University Contexts and Experience AND One writing intensive course</p> <p>COURSE SEQUENCE Following is the usual sequence for completion of courses:</p> <p>First Year</p> <ul style="list-style-type: none"> • <u>Foods and Nutrition 1010 Concepts and controversies in Nutrition</u> • Foods and Nutrition 1110 Introductory Foods • Biology 1220 Human Physiology • Biology 1310 Introduction to Cell and Molecular Biology • Chemistry 1110 General Chemistry I • Chemistry 1120 General Chemistry II • One of UPEI 1010, 1020 or 1030 • Math 1110 Finite Mathematics OR Math 1120 Calculus for the Managerial, Social and Life Sciences • Two 3 semester hours Social Science • One free elective <p>Second Year</p> <ul style="list-style-type: none"> • Foods and Nutrition 2110 Introductory Nutrition I • Foods and Nutrition 2120 Introductory Nutrition II • Foods and Nutrition 2230 Determinants of Dietary Behaviour • Foods and Nutrition 2610 Communications • Biology 2060 Microbiology at Diversity • Chemistry 2430 Organic Chemistry for the
---	---

CALENDAR & CURRICULUM CHANGE

MOTION #53

<ul style="list-style-type: none"> • Chemistry 2430 Organic Chemistry for the Life Sciences • Statistics 1210 (formerly STAT 2210) Introductory Statistics • Business 1710 Organizational Behaviour • Two free electives <p>Third Year</p> <ul style="list-style-type: none"> • Foods and Nutrition 3020 Advanced Foods • Foods and Nutrition 3310 Introduction to Research Methods • Foods and Nutrition 3510 Nutritional Assessment • Foods and Nutrition 3520 Clinical Nutrition I • Foods and Nutrition 3820 Program Planning & Evaluation • Chemistry 3530 Biochemistry • Four free electives <p>Fourth Year</p> <ul style="list-style-type: none"> • Foods and Nutrition 4120 Human Metabolism • Foods and Nutrition 4340 Community Nutrition • Two Foods and Nutrition electives at the 3000 or 4000 level • Six free electives 	<p>Life Sciences</p> <ul style="list-style-type: none"> • Statistics 1210 (formerly STAT 2210) Introductory Statistics • Business 1710 Organizational Behaviour • Two free electives <p>Third Year</p> <ul style="list-style-type: none"> • Foods and Nutrition 3020 Advanced Foods • Foods and Nutrition 3310 Introduction to Research Methods • Foods and Nutrition 3510 Nutritional Assessment • Foods and Nutrition 3520 Clinical Nutrition I • Foods and Nutrition 3820 Program Planning & Evaluation • Chemistry 3530 Biochemistry • Four free electives <p>Fourth Year</p> <ul style="list-style-type: none"> • Foods and Nutrition 4120 Human Metabolism • Foods and Nutrition 4340 Community Nutrition • Two <u>One</u> Foods and Nutrition electives at the 3000 or 4000 level • Seven free electives
---	--

Rationale for Change: FN 1010 has traditionally been offered to non-Foods & Nutrition majors and Foods & nutrition majors provided that they take it prior to FN 2110. This will now be required for Foods & Nutrition majors but will remain open to non-majors. The content has evolved to a more issue based focus, including nutrition controversies, so the title and description better reflect current practice.

Effective Date: September 2019

Implications for Other Programs: None

Impact on Students Currently Enrolled: None

Authorization	Date:
Departmental Approval: Dany MacDonald	September 25, 2018
Faculty/School Approval: Science Council	November 5, 2018
Faculty Dean's Approval: Kathy Gottschall-Pass	November 5, 2018
Graduate Studies Dean's Approval: N/A	N/A
Registrar's Office Approval: Pam McGuigan	November 19, 2018
APCC Meeting Date Approval	December 20, 2018

CALENDAR & CURRICULUM CHANGE

MOTION #54

Revision is for a: **Calendar Entry Change**

Faculty/School/Department: **Science**

Department/Program(s)/Academic Regulations: **Applied Human Sciences**

MOTION: To approve the proposed changes to the Foods and Nutrition Dietetic Option.

<u>Reproduction</u>	<u>Revised</u>
<p>DIETETIC OPTION</p> <p>In addition to the courses required for the Foods and Nutrition major, students interested in applying for dietetic internship must take Foods and Nutrition 3210 (Foodservice Systems Management), Foods and Nutrition 3830 (Professional Practice in Dietetics), Foods and Nutrition 4220 (Quantity Food Production), Foods and Nutrition 4310 (Evidence-Based Practice in the Health Sciences), and Foods and Nutrition 4610 (Clinical Nutrition II).</p> <p>COURSE SEQUENCE</p> <p>Following is the usual sequence for completion of courses:</p> <p>First Year</p> <ul style="list-style-type: none"> • Foods and Nutrition 1110 Introductory Foods • Biology 1220 Human Physiology • Biology 1310 Introduction to Cell and Molecular Biology • Chemistry 1110 General Chemistry I • Chemistry 1120 General Chemistry II • One of UPEI 1010, 1020 or 1030 • Math 1110 Finite Mathematics OR • Math 1120 Calculus for the Managerial, Social and Life Sciences • Two 3 semester hours Social Science • One free elective <p>Second Year</p> <ul style="list-style-type: none"> • Foods and Nutrition 2110 Introductory Nutrition I • Foods and Nutrition 2120 Introductory Nutrition II • Foods and Nutrition 2230 Determinants of Dietary Behaviour • Foods and Nutrition 2610 Communications • Biology 2060 Microbial Diversity • Chemistry 2430 Organic Chemistry for the Life Sciences • Statistics 2210 Introductory Statistics I • Business 1710 Organizational Behaviour • Two free electives 	<p>DIETETIC OPTION</p> <p>In addition to the courses required for the Foods and Nutrition major, students interested in applying for dietetic internship must take Foods and Nutrition 3210 (Foodservice Systems Management), <u>Foods and Nutrition 3710 (Lifespan Nutrition)</u>, Foods and Nutrition 3830 (Professional Practice in Dietetics), Foods and Nutrition 4220 (Quantity Food Production), Foods and Nutrition 4310 (Evidence-Based Practice in the Health Sciences), and Foods and Nutrition 4610 (Clinical Nutrition II).</p> <p>COURSE SEQUENCE</p> <p>Following is the usual sequence for completion of courses:</p> <p>First Year</p> <ul style="list-style-type: none"> • <u>Foods and Nutrition 1010 Concepts and Controversies in Nutrition</u> • Foods and Nutrition 1110 Introductory Foods • Biology 1220 Human Physiology • Biology 1310 Introduction to Cell and Molecular Biology • Chemistry 1110 General Chemistry I • Chemistry 1120 General Chemistry II • One of UPEI 1010, 1020 or 1030 • Math 1110 Finite Mathematics OR Math 1120 Calculus for the Managerial, Social and Life Sciences • Two 3 semester hours Social Science • One free elective <p>Second Year</p> <ul style="list-style-type: none"> • Foods and Nutrition 2110 Introductory Nutrition I • Foods and Nutrition 2120 Introductory Nutrition II • Foods and Nutrition 2230 Determinants of Dietary Behaviour • Foods and Nutrition 2610 Communications • Biology 2060 <u>Microbiology and Diversity</u> • Chemistry 2430 Organic Chemistry for the Life Sciences • Statistics 2210 <u>1210</u> Introductory Statistics I • Business 1710 Organizational Behaviour

CALENDAR & CURRICULUM CHANGE

MOTION #54

<p>Third Year</p> <ul style="list-style-type: none"> • Foods and Nutrition 3020 Advanced Foods • Foods and Nutrition 3210 Foodservice Systems Management • Foods and Nutrition 3310 Introduction to Research Methods • Foods and Nutrition 3510 Nutritional Assessment • Foods and Nutrition 3520 Clinical Nutrition I • Foods and Nutrition 3820 Program Planning & Evaluation • Foods and Nutrition 3830 Professional Practice in Dietetics • Chemistry 3530 Biochemistry • Two free electives <p>Fourth Year</p> <ul style="list-style-type: none"> • Foods and Nutrition 4120 Human Metabolism • Foods and Nutrition 4220 Quantity Food Production • Foods and Nutrition 4310 Evidence-Based Practice in the Health Sciences • Foods and Nutrition 4340 Community Nutrition • Foods and Nutrition 4610 Clinical Nutrition II • Five free electives 	<ul style="list-style-type: none"> • Two free electives <p>Third Year</p> <ul style="list-style-type: none"> • Foods and Nutrition 3020 Advanced Foods • Foods and Nutrition 3210 Foodservice Systems Management • Foods and Nutrition 3310 Introduction to Research Methods • Foods and Nutrition 3510 Nutritional Assessment • Foods and Nutrition 3520 Clinical Nutrition I • <u>Foods and Nutrition 3710 Lifespan Nutrition</u> • Foods and Nutrition 3820 Program Planning & Evaluation • Foods and Nutrition 3830 Professional Practice in Dietetics • Chemistry 3530 Biochemistry • <u>One</u> Two free electives <p>Fourth Year</p> <ul style="list-style-type: none"> • Foods and Nutrition 4120 Human Metabolism • Foods and Nutrition 4220 Quantity Food Production • Foods and Nutrition 4310 Evidence-Based Practice in the Health Sciences • Foods and Nutrition 4340 Community Nutrition • Foods and Nutrition 4610 Clinical Nutrition II • Five free electives
---	--

Rationale for Change: Although it has been an elective in the Foods and Nutrition program, FN 3710 includes content essential for dietetic internship placements and therefore should be required for dietetic interns. This change is based on feedback from our graduates.

Effective Date: September 2019

Implications for Other Programs: None

Impact on Students Currently Enrolled: None

Authorization	Date:
Departmental Approval: Dany MacDonald	September 25, 2018
Faculty/School Approval: Science Council	November 5, 2018
Faculty Dean's Approval: Kathy Gottschall-Pass	November 5, 2018
Graduate Studies Dean's Approval: N/A	N/A
Registrar's Office Approval: Pam McGuigan	November 19, 2018
APCC Meeting Date Approval	December 20, 2018

CALENDAR & CURRICULUM CHANGE

MOTION #55

Revision is for a: **Calendar Entry Change**

Faculty/School/Department: **Science**

Department/Program(s)/Academic Regulations: **Applied Human Sciences**

MOTION: To approve the proposed changes to the Foods and Nutrition Honours.

<u>Reproduction</u>	<u>Revised</u>
<p>The Honours program in Foods and Nutrition is designed to provide research experience at the undergraduate level within the BSc Program. It is available to students with a strong academic background who intend to continue studies at the post graduate level in Foods and Nutrition or related field, or to students who intend to pursue a career where research experience would be an asset.</p>	<p>The Honours program in Foods and Nutrition is designed to provide research experience at the undergraduate level within the BSc Program. It is available to students with a strong academic background who intend to continue studies at the post graduate level in Foods and Nutrition or related field, or to students who intend to pursue a career where research experience would be an asset.</p>
<p>The Honours program differs from the major in requiring a two-semester research course with thesis report for a total of 126 semester hours for the degree. The research component is to be completed within the BSc program and may require one summer (four months) preceding the graduating year. Evaluation of the research data and writing of the thesis would normally be done during the fall and/or spring session in Foods and Nutrition 490: Advanced Research and Thesis. The following are the course requirements for the Honours program in Foods and Nutrition.</p>	<p>The Honours program differs from the major in requiring a two-semester research course with thesis report for a total of 126 semester hours for the degree. The research component is to be completed within the BSc program and may require one summer (four months) preceding the graduating year. Evaluation of the research data and writing of the thesis would normally be done during the fall and/or spring session in Foods and Nutrition 490: Advanced Research and Thesis. The following are the course requirements for the Honours program in Foods and Nutrition.</p>
<p>First Year</p>	<p>First Year</p>
<ul style="list-style-type: none"> • Foods and Nutrition 1110 Introductory Foods • Chemistry 1110-1120 General Chemistry I and II • Math 1110 OR 1120 Finite Mathematics OR Calculus for the Managerial, Social and Life Sciences • Biology 1220 Human Physiology • Biology 1310 Introduction to Cell and Molecular Biology • One of UPEI 1010, 1020 or 1030 • Two 3 semester hours Social Science • One free elective 	<ul style="list-style-type: none"> • <u>Foods and Nutrition 1010 Concepts and Controversies in Nutrition</u> • Foods and Nutrition 1110 Introductory Foods • Chemistry 1110-1120 General Chemistry I and II • Math 1110 OR 1120 Finite Mathematics OR Calculus for the Managerial, Social and Life Sciences • Biology 1220 Human Physiology • Biology 1310 Introduction to Cell and Molecular Biology • One of UPEI 1010, 1020 or 1030 • Two 3 semester hours Social Science • One free elective
<p>Second Year</p>	<p>Second Year</p>
<ul style="list-style-type: none"> • Foods and Nutrition 2110-2120 Introductory Nutrition I and II • Foods and Nutrition 2230 Determinants of Dietary Behaviour • Foods and Nutrition 2610 Communications • Chemistry 2430 Organic Chemistry for the Life Sciences 	<ul style="list-style-type: none"> • Foods and Nutrition 2110-2120 Introductory Nutrition I and II • Foods and Nutrition 2230 Determinants of Dietary Behaviour • Foods and Nutrition 2610 Communications • Chemistry 2430 Organic Chemistry for the Life

CALENDAR & CURRICULUM CHANGE

MOTION #55

<ul style="list-style-type: none"> • Biology 2060 Microbial Diversity • Statistics 1210 (formerly STAT 2210) Introductory Statistics • Business 1710 Organizational Behaviour • Two free electives <p>Third Year</p> <ul style="list-style-type: none"> • Foods and Nutrition 3020 Advanced Foods • Foods and Nutrition 3310 Introduction in Research Methods • Foods and Nutrition 3510 Nutritional Assessment • Foods and Nutrition 3520 Clinical Nutrition I • Foods and Nutrition 3820 Program Planning and Evaluation • Chemistry 3530 Biochemistry • Four free electives <p>Fourth Year</p> <ul style="list-style-type: none"> • Foods and Nutrition 4120 Human Metabolism • Foods and Nutrition 4340 Community Nutrition • Foods and Nutrition 4900 Advanced Research and Thesis • Two Foods and Nutrition electives at the 3000 or 4000 level • Four free electives <p>NOTE: Honours students are advised to take an advanced statistics course and consult with their advisor for assistance in choosing electives that will support their research projects.</p> <p>Entrance Requirements</p> <p>For admission to the Honours program, students must have a minimum average of 75% in all Foods and Nutrition courses combined and an overall average of 70% in all previous courses. Permission of the Department is also required and is contingent on the student finding an advisor and on acceptance of the research project by the Department of Applied Human Sciences. Students interested in completing an honours should consult with the Department Chair as early as possible and not later than March 31st of the student's third year.</p> <p>To graduate with Honours in Foods and Nutrition, students must maintain a minimum average of 75% in all Foods and Nutrition courses combined and an overall average of 70%.</p>	<p>Sciences</p> <ul style="list-style-type: none"> • Biology 2060 Microbiology ial Diversity • Statistics 1210 (formerly STAT 2210) Introductory Statistics • Business 1710 Organizational Behaviour • Two free electives <p>Third Year</p> <ul style="list-style-type: none"> • Foods and Nutrition 3020 Advanced Foods • Foods and Nutrition 3310 Introduction in Research Methods • Foods and Nutrition 3510 Nutritional Assessment • Foods and Nutrition 3520 Clinical Nutrition I • Foods and Nutrition 3820 Program Planning and Evaluation • Chemistry 3530 Biochemistry • Four free electives <p>Fourth Year</p> <ul style="list-style-type: none"> • Foods and Nutrition 4120 Human Metabolism • Foods and Nutrition 4340 Community Nutrition • Foods and Nutrition 4900 Advanced Research and Thesis • Two <u>One</u> Foods and Nutrition electives at the 3000 or 4000 level • Five free electives <p>NOTE: Honours students are advised to take an advanced statistics course and consult with their advisor for assistance in choosing electives that will support their research projects.</p> <p>Entrance Requirements</p> <p>For admission to the Honours program, students must have a minimum <u>GPA of 3.0</u> average of 75% in all Foods and Nutrition courses combined and a average of 70% <u>CGPA of 2.7</u> in all previous courses. Permission of the Department is also required and is contingent on the student finding an advisor and on acceptance of the research project by the Department of Applied Human Sciences. Students interested in completing an honours should consult with the Department Chair as early as possible and not later than March 31st of the student's third year.</p> <p>To graduate with Honours in Foods and Nutrition, students must maintain a minimum average of 75% <u>GPA of 3.0</u> in all Foods and Nutrition courses combined and a CGPA of 2.7, average of 70% <u>CGPA of 2.7</u>.</p>
--	--



CALENDAR & CURRICULUM CHANGE

MOTION #55

Rationale for Change: This change is to make the Honours program consistent with the changes made to the major.

Effective Date: September 2019

Implications for Other Programs: None

Impact on Students Currently Enrolled: None

Authorization	Date:
Departmental Approval: Dany MacDonald	September 25, 2018
Faculty/School Approval: Science Council	November 5, 2018
Faculty Dean's Approval: Kathy Gottschall-Pass	November 5, 2018
Graduate Studies Dean's Approval: N/A	N/A
Registrar's Office Approval: Pam McGuigan	November 20, 2018
APCC Meeting Date Approval	December 20, 2018

CALENDAR & CURRICULUM CHANGE

MOTION #56

Revision is for a: **Calendar Entry Change**

Faculty/School/Department: **Science**

Department/Program(s)/Academic Regulations: **Biology Department – BSc. in Paramedicine**

MOTION: To approved the proposed changes for the Paramedicine program.

<p>While at UPEI, paramedics in the BSc. program will take 20 courses. Of these, 15 are required (core) courses and the rest will be electives. The core courses will primarily be in Biology, with four advanced courses in Paramedicine:</p> <ul style="list-style-type: none"> • 3 first year courses: First Year Experience, Introductory Biology I (Introduction to Cell & Molecular Biology), Introductory Chemistry I (General Chemistry I); • 5 second year courses: Cell Biology, Microbiology, Human Genetics, Human Biochemistry, Introductory Statistics; • 2 third year courses: Research Methods & Communications, Medical Microbiology; and • 5 fourth year courses: Basic & Clinical Immunology; Health Promotion, Planning & Evaluation; Disaster Medicine & Crisis Response; Critical Appraisal of Health Care Literature in the Acute Care Environment; and Current Issues in Paramedicine. <p>Paramedics will take five elective courses to complete this program. Two of these electives must be from Science (Chemistry, Nutrition, Kinesiology or Physics) or Social Science areas (Business, Psychology or Philosophy).</p> <p>Students with an average of 75% in second year may apply to complete an Honours thesis and enrol in Paramedicine 4900 - Honours Thesis in Paramedicine.</p> <p>COURSE SEQUENCE: YEAR I <i>First semester:</i></p> <ul style="list-style-type: none"> • Biology 1310 (Introduction to Cell and Molecular Biology) • UPEI 1010/1020/1030 (First Year Experience) • Biology 2210 (Cell Biology) • Chemistry 1110 (General Chemistry I) • Elective (recommend one of two from the list below) <p><i>Second semester:</i></p> <ul style="list-style-type: none"> • Biology 2060 (Microbiology) • Biology 2240 (Human Genetics) • Biology 2250 (Human Biochemistry) • Paramedicine 4010 (Health Promotion, 	<p>While at UPEI, paramedics in the BSc. program will take 20 courses. Of these, 15 are required (core) courses and the rest will be electives. The core courses will primarily be in Biology, with four advanced courses in Paramedicine:</p> <ul style="list-style-type: none"> • 3 first year courses: First Year Experience, Introductory Biology I (Introduction to Cell & Molecular Biology), Introductory Chemistry I (General Chemistry I); • 5 second year courses: Cell Biology, Microbiology, Human Genetics, Human Biochemistry, Introductory Statistics <u>or Introduction to Probability and Statistics</u> • 2 third year courses: Research Methods & Communications, Medical Microbiology; and • 5 fourth year courses: Basic & Clinical Immunology <u>or Medical Biology</u>; Health Promotion, Planning & Evaluation; Disaster Medicine & Crisis Response; Critical Appraisal of Health Care Literature in the Acute Care Environment; and Current Issues in Paramedicine. <p>Paramedics will take five elective courses to complete this program. Two of these electives must be from Science (Chemistry, Nutrition, Kinesiology or Physics) or Social Science areas (Business, Psychology or Philosophy).</p> <p>Students with a CGPA of 3.0 in second year may apply to complete an Honours thesis and enrol in Paramedicine 4900 - Honours Thesis in Paramedicine.</p> <p>COURSE SEQUENCE: YEAR I <i>First semester:</i></p> <ul style="list-style-type: none"> • Biology 1310 (Introduction to Cell and Molecular Biology) • UPEI 1010/1020/1030 (First Year Experience) • <u>Biology 2060 (Microbiology)</u> • Biology 2210 (Cell Biology) • Chemistry 1110 (General Chemistry I) • Elective (recommend one of two from the list below) <p><i>Second semester:</i></p>
--	---

CALENDAR & CURRICULUM CHANGE

MOTION #56

<p>Planning and Evaluation)</p> <ul style="list-style-type: none"> • Elective (recommend one of two from the list below) <p>YEAR 2 <i>First semester:</i></p> <ul style="list-style-type: none"> • Biology 3750 (Medical Microbiology) • Statistics 1210 (Introductory Statistics) • Paramedicine 4020 (Disaster Medicine and Crisis Response) • Biology 3310 (Research Methods and Communications in Biology) • Elective or Paramedicine 4900 (Honours Research and Thesis) <p><i>Second semester:</i></p> <ul style="list-style-type: none"> • Biology 4750 (Basic and Clinical Immunology) • Paramedicine 4030 (Critical Appraisal of Health Care Literature in the Acute Care Environment) • Paramedicine 4040 (Current Issues in Paramedicine) • Elective or Paramedicine 4900 (Honours Research and Thesis) • Elective <p>ELECTIVES: Students complete the degree requirements by choosing five electives. Two electives must be from one of the Sciences or Social Sciences/Humanities listed below. Students are encouraged to take two electives from the same discipline (e.g., Psych 1010 and 1020) as these are set up to be taught in the first and second semesters, and sometimes summer. It will also make it easier to get into electives in the same discipline the following year. NOTE: Students may also register for Paramedicine 4900 (Honours Thesis in Paramedicine) in which case they would need two fewer electives in their second year and then they may graduate with an Honours degree. Students must take a minimum of two of these courses:</p> <ul style="list-style-type: none"> • Business 1010 - Introduction to Business; Business 1710 - Organizational Behaviour • Biology 1320 - Introduction to Organisms • Chemistry 1120 - General Chemistry II; Chemistry 2430 - Organic Chemistry • Foods and Nutrition 1010 - Nutrition for Living; Foods and Nutrition 2110 and 2120 - Introductory Nutrition I and II • Kinesiology 1010 - Introduction to Kinesiology • Philosophy 1050 - Technology, Values, and Science; Philosophy 1110 - Critical Thinking 	<ul style="list-style-type: none"> • Biology 2060 (Microbiology) • Biology 2240 (Human Genetics) • Biology 2250 (Human Biochemistry) • <u>Chemistry 1110 (General Chemistry I)</u> • Paramedicine 4010 (Health Promotion, Planning and Evaluation) • <u>UPEI 1010/1020/1030 (First Year Experience)</u> • <u>2 Electives</u> (recommended one of two from the list below) <p>YEAR 2 <i>First semester:</i></p> <ul style="list-style-type: none"> • Biology 3310 (Research Methods and Communications in Biology) • Biology 3750 (Medical Microbiology) • Statistics 1210 (Introductory Statistics) • Paramedicine 4020 (Disaster Medicine and Crisis Response) • Biology 3310 (Research Methods and Communications in Biology) • Elective or Paramedicine 4900 (Honours Research and Thesis) <p><i>Second semester:</i></p> <ul style="list-style-type: none"> • Biology <u>4050 (Medical Biology) OR</u> 4750 (Basic and Clinical Immunology) • <u>Paramedicine 4020 (Disaster Medicine and Crisis Response)</u> • Paramedicine 4030 (Critical Appraisal of Health Care Literature in the Acute Care Environment) • Paramedicine 4040 (Current Issues in Paramedicine) • <u>Statistics 1210 (Introductory Statistics) OR 1910 (Introduction to Probability and Statistics)</u> • <u>2 Electives</u> or Paramedicine 4900 (Honours Research and Thesis) • <u>One final Elective</u> <p>ELECTIVES: Students complete the degree requirements by choosing five electives. Two electives must be from one of the Sciences or Social Sciences/Humanities listed below. Students are encouraged to take two electives from the same discipline (e.g., Psych 1010 and 1020) as these are set up to be taught in the first and second semesters, and sometimes summer. It will also make it easier to get into electives in the same discipline the following year. NOTE: Students may also register for Paramedicine 4900 (Honours Thesis in Paramedicine) in which case they would need two fewer electives in their second year</p>
--	--

CALENDAR & CURRICULUM CHANGE

MOTION #56

<ul style="list-style-type: none"> • Physics 1210 and 1220 - Physics for Life Sciences I and II • Psychology 1010 and 1020 - Introduction to Psychology I and II 	<p>and then they may graduate with an Honours degree. Students must take a minimum of two of these courses. <u>NOTE: Some courses have pre-requisites.</u></p> <ul style="list-style-type: none"> • Business 1010 - Introduction to Business • Business 1710 - Organizational Behaviour • Biology 1320 - Introduction to Organisms • Chemistry 1120 - General Chemistry II • Chemistry 2430 - Organic Chemistry • Foods and Nutrition 1010 - Nutrition for Living; <u>Concepts and Controversies in Nutrition</u> • Foods and Nutrition 2110 - Introductory Nutrition I • Foods and Nutrition 2120 - Introductory Nutrition II • Kinesiology 1010 - Introduction to Kinesiology • Philosophy 1050 - Technology, Values, and Science • Philosophy 1110 - Critical Thinking • Physics 1210 - Physics for Life Sciences I • Physics 1220 - Physics for Life Sciences II • Psychology 1010 - Introduction to Psychology I • Psychology 1020 - Introduction to Psychology II
--	---

Rationale for Change: Bio 4050, Medical Biology, is a new course so it was not available when the BSc in Paramedicine was started. The content is very relevant to this group of students and their experience will add value to other students in the course. We have made it a choice for students rather than adding it as an additional core course so that they still can take 5 electives. Similarly with STAT 1910, Introduction to Probability and Statistics. Students only take 20 credits at UPEI, so this gives them more flexibility. The other changes reflected in this document clean up the language for the course sequence, removing the semesters in Year 1 and Year 2 to provide clarity since courses may not always be offered in the same semester each year.

Effective Date: May 2019

Implications for Other Programs: none

Impact on Students Currently Enrolled: none. First year students can make this choice next year

Authorization	Date:
Departmental Approval: Marva Sweeney-Nixon	October 25, 2018
Faculty/School Approval: Science Council	November 5, 2018
Faculty Dean's Approval: Kathy Gottschall-Pass	November 5, 2018
Graduate Studies Dean's Approval: N/A	N/A
Registrar's Office Approval: Pam McGuigan	November 20, 2018
APCC Meeting Date Approval	December 20, 2018

NEW COURSE PROPOSAL

Motion #57

Faculty/School: **Science**

Department/Program(s): **Chemistry**

MOTION: To approve the new course MMS 8140 Marine Natural Products Chemistry.

Course Number and Title	MMS 8140 Marine Natural Products Chemistry
Description	The overall goal of the course is to provide a description of the structures and biosynthetic origins of natural products of marine origin. The main classes of natural products will be reviewed with an emphasis on their biological origin as a tool to understanding structures. The biomedical relevance of marine natural products will be discussed along with special topics lectures on such themes as “From lead compound to FDA approval” and “Development of a natural product drug lead”. Additional lectures on biological screening and metabolomics as modern tools in drug discovery, and chromatographic purification of natural products will round out the discussions. Students will be expected to develop a thorough understanding of the biosynthetic origin of all major categories of natural products through case studies.
Cross-Listing	CHEM 4140. Credit cannot be received for both MMS 8140 and CHEM 4140.
Prerequisite/Co-Requisite	Admission to graduate program in Science
Credit(s)	3
Notation	

This is: An Elective Course

Grade Mode: Numeric (Standard)

Anticipated Enrolment: 20

Is there an Enrolment Cap: No

Rationale for New Course: This course has been offered as a Special Topics course and we are now requesting approval for a new course name and number. The course will be of interest to graduate students in Chemistry, Biology and Biomedical Sciences pursuing thesis research involving aspects of natural products.

Effective Date: May 2019

Implications for Other Programs: None

Impact on Students Currently Enrolled: None

Resources Required: None

In offering this course will UPEI require facilities or staff at other institutions: No

<i>Authorization</i>	<i>Date:</i>
Departmental Approval: Dr. Rabin Bissessur	September 14, 2018
Faculty/School Approval: Science Council	September 24, 2018
Faculty Dean's Approval: Kathy Gottschall-Pass	September 24, 2018
Graduate Studies Dean's Approval: Dr. Larry Hammell	November 16, 2018
Registrar's Office Approval: Pam McGuigan	November 20, 2018
APCC Meeting Date Approval	December 20, 2018

NEW COURSE PROPOSAL

Motion #57

LIBRARY RESOURCE REQUIREMENTS FOR A NEW COURSE PROPOSAL

MMS 8140 Marine Natural Products Chemistry

Existing resources:

- Collections –
 - Books
 - subject searches
 - **biotechnology: 1653 books**
 - **biochemistry: 1171 books**
 - **Bioactive compounds: 70 books**
 - **marine biotechnology: 19 books**
 - **natural products: 86 books**
 - **marine natural products: 17 books**
 - **marine pharmacology: 17 books**
 - **pharmacognosy: 30 books**
 - keyword searches
 - **“natural products”: 380 books**
 - **“product development” biology: 33 books**
 - **chemistry and marine: 239 books**
 - **“marine natural products”: 36 books**
 - **bioactive and marine: 81 books**
 - Journals
 - By Subject
 - **Biotechnology: 215 journals**
 - **Chemistry: 1654 journals**
 - **Environmental Sciences: 956 journals**
 - Individual titles
 - **40 titles with the terms (natural OR organic OR marine) AND product* NOT (oil OR gas)**
 - **Natural Products: 44 journals**
 - **Pharmacognosy: 21 journals**
- Holdings, Subscriptions, Other
 - Journals
 - **Biotechnology: 215 journals**
 - **Chemistry: 1654 journals**
 - **Environmental Sciences: 956 journals**
 - Individual titles
 - **40 titles with the terms (natural OR organic OR marine) AND product* NOT (oil OR gas)**
 - **Natural Products: 44 journals**
 - **Pharmacognosy: 21 journals**
- Subscription Dependencies (in interdisciplinary packages)
 - **Many journal titles rely on subscriptions including ScienceDirect, ACS, Royal Society of Chemistry, Wiley, Springer, Business Source Complete, etc.**
 - **Many relevant books are in ScienceDirect, EBSCOhost, and Proquest subscription or “evidence-based acquisition” packages.**
- Physical Space in Library (other than holdings, explain): **N/A**
- Library Administrative/Research Support: **Liaison Librarian Rosie Le Faive can provide research and instructional support to the Faculty and Students.**

New resources needed to support this proposal:

- Capital Requirements (*other than new course-specific*)
- Collections:
 - Monographs – **None**
 - Subscriptions – **None**
 - Databases – **None**



NEW COURSE PROPOSAL

Motion #57

- Other
- Physical Space in Library (other than holdings, explain) – **None**
- Library Administrative/Research Support – **None**
- Other One-Time or Ongoing Library expenses (e.g. software licenses) – **None**

Summary of additional budget allocation required:

- One-time: n/a For each of n/a consecutive years
- Annual: n/a
 - Per-year percentage increase in annual:

Does the budget allocation for library resources in this proposal meet the requirement?

The materials supporting this program are heavily (nearly exclusively) made available through subscriptions. The prices of journal subscriptions tend to increase 3-6% per year. The proposal is supportable right now, but to be sustainable the annual library budget will need to increase at least enough to account for inflation and fluctuations in exchange rates.

Date Received by Liaison/Collections Librarian	September 14, 2018
Name of Librarian to be Contacted for Questions	Rosie Le Faive
Approved by University Librarian or Designate - Name	Donald Moses
Date Approved by UL or Designate	October 30, 2018

NEW COURSE PROPOSAL

Motion #58

Faculty/School: **Science**

Department/Program(s): **Chemistry**

MOTION: To approve the new course CHEM 4140 Marine Natural Products Chemistry.

Course Number and Title	CHEM 4140 Marine Natural Products Chemistry
Description	The overall goal of the course is to provide a description of the structures and biosynthetic origins of natural products of marine origin. The main classes of natural products will be reviewed with an emphasis on their biological origin as a tool to understanding structures. The biomedical relevance of marine natural products will be discussed along with special topics lectures on such themes as “From lead compound to FDA approval” and “Development of a natural product drug lead”. Additional lectures on biological screening and metabolomics as modern tools in drug discovery, and chromatographic purification of natural products will round out the discussions.
Cross-Listing	
Prerequisite/Co-Requisite	Chemistry 2410 or Chemistry 2430
Credit(s)	3
Notation	

This is: An Elective Course

Grade Mode: Numeric (Standard)

Anticipated Enrolment: 20

Is there an Enrolment Cap: No

Rationale for New Course: This course has been offered as a Special Topics course and we are now requesting approval for a new course name and number. Honours and Majors can use it as an elective.

Effective Date: May 2019

Implications for Other Programs: None

Impact on Students Currently Enrolled: None

Resources Required: None

In offering this course will UPEI require facilities or staff at other institutions: No

Authorization

Date:

Departmental Approval: Dr. Rabin Bissessur	September 14, 2018
Faculty/School Approval: Science Council	September 24, 2018
Faculty Dean’s Approval: Kathy Gottschall-Pass	September 24, 2018
Graduate Studies Dean’s Approval: Dr. Larry Hammell	November 16, 2018
Registrar’s Office Approval: Pam McGuigan	November 20, 2018
APCC Meeting Date Approval	December 20, 2018

NEW COURSE PROPOSAL

Motion #58

LIBRARY RESOURCE REQUIREMENTS FOR A NEW COURSE PROPOSAL

CHEM 4140 Marine Natural Products Chemistry

Existing resources:

- Collections –
 - Books
 - subject searches
 - **biotechnology: 1653 books**
 - **biochemistry: 1171 books**
 - **Bioactive compounds: 70 books**
 - **marine biotechnology: 19 books**
 - **natural products: 86 books**
 - **marine natural products: 17 books**
 - **marine pharmacology: 17 books**
 - **pharmacognosy: 30 books**
 - keyword searches
 - **“natural products”: 380 books**
 - **“product development” biology: 33 books**
 - **chemistry and marine: 239 books**
 - **“marine natural products”: 36 books**
 - **bioactive and marine: 81 books**
 - Journals
 - By Subject
 - **Biotechnology: 215 journals**
 - **Chemistry: 1654 journals**
 - **Environmental Sciences: 956 journals**
 - Individual titles
 - **40 titles with the terms (natural OR organic OR marine) AND product* NOT (oil OR gas)**
 - **Natural Products: 44 journals**
 - **Pharmacognosy: 21 journals**
- Holdings, Subscriptions, Other
 - Journals
 - **Subscription Dependencies (in interdisciplinary packages)**
 - **Many journal titles rely on subscriptions including ScienceDirect, ACS, Royal Society of Chemistry, Wiley, Springer, Business Source Complete, etc.**
 - **Many relevant books are in ScienceDirect, EBSCOhost, and Proquest subscription or “evidence-based acquisition” packages.**
 - Physical Space in Library (other than holdings, explain): **N/A**
 - Library Administrative/Research Support: **Liaison Librarian Rosie Le Faive can provide research and instructional support to the Faculty and Students.**

New resources needed to support this proposal:

- Capital Requirements (*other than new course-specific*)
- Collections:
 - Monographs – **None**
 - Subscriptions – **None**



NEW COURSE PROPOSAL

Motion #58

- Databases – **None**
- Other
- Physical Space in Library (other than holdings, explain) – **None**
- Library Administrative/Research Support – **None**
- Other One-Time or Ongoing Library expenses (e.g. software licenses) – **None**

Summary of additional budget allocation required:

- One-time: n/a For each of n/a consecutive years
- Annual: n/a
 - Per-year percentage increase in annual:

Does the budget allocation for library resources in this proposal meet the requirement?

The materials supporting this program are heavily (nearly exclusively) made available through subscriptions. The prices of journal subscriptions tend to increase 3-6% per year. The proposal is supportable right now, but to be sustainable the annual library budget will need to increase at least enough to account for inflation and fluctuations in exchange rates.

Date Received by Liaison/Collections Librarian	September 14, 2018
Name of Librarian to be Contacted for Questions	Rosie Le Faive
Approved by University Librarian or Designate - Name	Donald Moses
Date Approved by UL or Designate	October 30, 2018

CALENDAR & CURRICULUM CHANGE

Motion #59

Revision is for a: Cross-listing Change

Faculty/School/Department: Science

Department/Program(s)/Academic Regulations: **Chemistry**

MOTION: That CHEM 4690 Materials Chemistry be cross-listed with MMS 8690 Materials Chemistry.

<p><u>Reproduction</u> CHEM-4690 Materials Chemistry This course discusses current topics in materials chemistry. Topics include the synthesis and characterization of intercalation compounds, conductive polymers and their applications, semiconductors and their applications, defects in inorganic solids, and transport measurements. Three lecture hours a week PREREQUISITE: Chemistry 2410-2420 with a combined minimum average of 60%, 3310, 3740 with a minimum of 60% in these courses 3 hours credit</p>	<p><u>MMS 8690 Materials Chemistry</u> This course discusses current topics in materials chemistry. Topics include the synthesis and characterization of intercalation compounds, conductive polymers and their applications, semiconductors and their applications, defects in inorganic solids, and transport measurements. <u>Students will perform a thorough literature search on a topic in materials science; write a review and a research proposal on the selected topic, followed by in-class presentations.</u> <u>Cross-listed with CHEM 4690. Credit cannot be received for both MMS 8690 and CHEM 4690.</u> PREREQUISITE: <u>Admission to a graduate program in Science.</u> 3 hours credit</p>
---	---

Rationale for Change: This will provide an added course for graduate students.

Effective Date: May 2019

Implications for Other Programs: None

Impact on Students Currently Enrolled: None

<i>Authorization</i>	<i>Date:</i>
Departmental Approval: Rabin Bissessur	September 14, 2018
Faculty/School Approval: Science Council	September 24, 2018
Faculty Dean's Approval: Kathy Gottschall-Pass	September 24, 2018
Graduate Studies Dean's Approval: Dr. Larry Hammell	November 16, 2018
Registrar's Office Approval: Pam McGuigan	November 20, 2018
APCC Meeting Date Approval	December 20, 2018

CALENDAR & CURRICULUM CHANGE

Motion #60

Revision is for a: Cross-listing Change

Faculty/School/Department: Science

Department/Program(s)/Academic Regulations: **Chemistry**

MOTION: To approve the proposed changes for MMS 8090 Biomaterials.

<p><u>Reproduction</u> MMS-8090 Biomaterials This course covers the fundamentals of the synthesis, properties, and biocompatibility of metallic, ceramic, polymeric, and biological materials that come in contact with tissue and biological fluids. Emphasis is placed on using biomaterials for both hard and soft tissue replacement, organ replacement, coatings and adhesives, dental implants, and drug delivery systems. New trends in biomaterials, such as electrically conductive polymers, piezoelectric biomaterials, and solgel processing are discussed, and the recent merging of cell biology and biochemistry with materials is examined. HOURS OF CREDIT: 3 Restriction: Student must be admitted into a graduate program in Science</p>	<p><u>Revised</u> MMS-8090 Biomaterials This course covers the fundamentals of the synthesis, properties, and biocompatibility of metallic, ceramic, polymeric, and biological materials that come in contact with tissue and biological fluids. Emphasis is placed on using biomaterials for both hard and soft tissue replacement, organ replacement, coatings and adhesives, dental implants, and drug delivery systems. New trends in biomaterials, such as electrically conductive polymers, piezoelectric biomaterials, and solgel processing are discussed, and the recent merging of cell biology and biochemistry with materials is examined. <u>Cross-listed with CHEM 4090. Credit cannot be received for both MMS 8090 and CHEM 4090.)</u> HOURS OF CREDIT: 3 Restriction: Student must be admitted into a graduate program in Science</p>
	<p><u>CHEM 4090 Biomaterials</u> <u>This course covers the fundamentals of the synthesis, properties, and biocompatibility of metallic, ceramic, polymeric, and biological materials that come in contact with tissue and biological fluids. Emphasis is placed on using biomaterials for both hard and soft tissue replacement, organ replacement, coatings and adhesives, dental implants, and drug delivery systems. New trends in biomaterials and the recent merging of cell biology and biochemistry with materials is examined.</u> <u>PREREQUISITE: CHEM 3420</u> <u>HOURS OF CREDIT: 3</u></p>

Rationale for Change: This will provide an added course for Honours and Majors in Chemistry.

Effective Date: May 2019

Implications for Other Programs: None

Impact on Students Currently Enrolled: None

Authorization	Date:
Departmental Approval: Rabin Bissessur	September 14, 2018
Faculty/School Approval: Science Council	September 24, 2018
Faculty Dean's Approval: Kathy Gottschall-Pass	September 24, 2018
Graduate Studies Dean's Approval: Dr. Larry Hammell	November 16, 2018
Registrar's Office Approval: Pam McGuigan	November 20, 2018
APCC Meeting Date Approval	December 20, 2018

CALENDAR & CURRICULUM CHANGE

Motion #61

Revision is for a: Cross-listing Change

Faculty/School/Department: Science

Department/Program(s)/Academic Regulations: **Chemistry**

MOTION: To approve the proposed changes for MMS 8050 Advanced Studies in NMR Spectroscopy.

<p><u>Reproduction</u> MMS-8050 Advanced Studies in NMR Spectroscopy This course covers the use of Nuclear Magnetic Resonance (NMR) spectrometry used in the determination of structures in Organic and Inorganic Chemistry. Major topics include the theory and use of NMR spectroscopy, in particular the use of 2D experiments and multi-nuclear NMR spectroscopy. Particular emphasis is placed on developing the students' ability to interpret spectra and elucidate the structure of a molecule based on this evidence beyond the undergraduate level, as well as the role NMR has played as a structural tool in the pharmaceutical industry and academia. HOURS OF CREDIT: 3 Restriction: Student must be admitted into a graduate program in Science</p>	<p><u>Revised</u> MMS-8050 Advanced Studies in NMR Spectroscopy This course covers the use of Nuclear Magnetic Resonance (NMR) spectrometry used in the determination of structures in Organic and Inorganic Chemistry. Major topics include the theory and use of NMR spectroscopy, in particular the use of 2D experiments and multi-nuclear NMR spectroscopy. Particular emphasis is placed on developing the students' ability to interpret spectra and elucidate the structure of a molecule based on this evidence beyond the undergraduate level, as well as the role NMR has played as a structural tool in the pharmaceutical industry and academia. <u>Students will have a practical/hands-on component in this course.</u> <u>Cross-listed with CHEM 4050. Credit cannot be received for both MMS 8050 and CHEM 4050.</u> HOURS OF CREDIT: 3 Restriction: Student must be admitted into a graduate program in Science</p>
	<p><u>CHEM 4050 Advanced Studies in NMR Spectroscopy</u> <u>This course covers the use of Nuclear Magnetic Resonance (NMR) spectrometry used in the determination of structures in Organic and Inorganic Chemistry. Major topics include the theory and use of NMR spectroscopy, in particular the use of 2D experiments and multi-nuclear NMR spectroscopy. Particular emphasis is placed on developing the students' ability to interpret spectra and elucidate the structure of a molecule based on this evidence beyond the undergraduate level, as well as the role NMR has played as a structural tool in the pharmaceutical industry and academia.</u> <u>HOURS OF CREDIT: 3</u> <u>PREREQUISITE: CHEM 3610 with a minimum of 60%</u></p>

Rationale for Change: This will provide an added course for Honours and Majors in Chemistry.

Effective Date: May 2019

Implications for Other Programs: None

Impact on Students Currently Enrolled: None



CALENDAR & CURRICULUM CHANGE

Motion #61

<i>Authorization</i>	<i>Date:</i>
Departmental Approval: Rabin Bissessur	September 14, 2018
Faculty/School Approval: Science Council	September 24, 2018
Faculty Dean's Approval: Kathy Gottschall-Pass	September 24, 2018
Graduate Studies Dean's Approval: Dr. Larry Hammell	November 16, 2018
Registrar's Office Approval: Pam McGuigan	November 20, 2018
APCC Meeting Date Approval	December 20, 2018

CALENDAR & CURRICULUM CHANGE

Motion #62

Revision is for a: **Calendar Entry Change**

Faculty/School/Department: **Science**

Department/Program(s)/Academic Regulations: **Environmental Studies**

MOTION: To approve the proposed changes for ESC 8020 Communication Strategies.

<p><u>Reproduction:</u> ESC-8020 Communication Strategies This workshop-style course is central to the certification in Environmental Communication Strategies and is built on the training offered through UPEI's Centre for Conflict Resolution. This course promotes the development of communication skills in the context of environmental issues and exposes students to direct interaction with representatives from industry, government, community, and the social sciences. The course will also provide broad theoretical and practical knowledge needed to resolve disputes as well as skills training in techniques of mediation, facilitation, and negotiation. Due to the uniqueness of this course, it is considered a critical component towards the development of experience and involvement on the decision making process. The topics addressed during presentations and discussions will be the starting point for the development of written reports that at a later stage will benefit from the feedback from the coordinating faculty, and the representatives of industry, government and community. Restriction: Student must be admitted to a graduate program in Science 3 hours credit</p>	<p><u>Revised:</u> ESC-8020 Communication Strategies This workshop-style course is central to the certification in Environmental Communication Strategies and is built on the training offered through UPEI's Centre for Conflict Resolution. This course promotes the development of communication skills in the context of environmental issues and exposes students to direct interaction with representatives from industry, government, community, and the social sciences. The course will also provide broad theoretical and practical knowledge needed to resolve disputes as well as skills training in techniques of mediation, facilitation, and negotiation. Due to the uniqueness of this course, it is considered a critical component towards the development of experience and involvement on the decision making process. The topics addressed during presentations and discussions will be the starting point for the development of written reports that at a later stage will benefit from the feedback from the coordinating faculty, and the representatives of industry, government and community. Beyond the activities of ENV-4330, the graduate-level assessment of this course involves weekly assigned readings, an essay on a selected topic that includes an extensive literature review, and a seminar on the researched topic. <u>Restriction: Student must be admitted to a graduate program in Science.</u> <u>Cross-listed with ENV 4330; Credit cannot be received for both ENV 4330 and ESC 8020.</u> 3 hours credit</p>
--	--

Rationale for Change: This change will make the offering of ESC-8020 more consistent over time. This graduate course was originally based on workshops from the UPEI "Centre for Conflict Resolution" and subsequently from the "Office of Skills Development and Learning". However, the timing, content and cost of those workshops was becoming increasingly difficult to manage. The offering of this course cross-listed with ENV-4330 will make it far more regular and consistent with regards to content, and will reduce a current financial burden for the graduate programs in Science.

Effective Date: January 2019

Implications for Other Programs: None

Impact on Students Currently Enrolled: None



CALENDAR & CURRICULUM CHANGE

Motion #62

<i>Authorization</i>	<i>Date:</i>
Departmental Approval: Environmental Studies & Science Graduate Studies	November 1, 2018
Faculty/School Approval: Science Council	November 5, 2018
Faculty Dean's Approval: Kathy Gottschall-Pass	November 5, 2018
Graduate Studies Dean's Approval: Dr. Larry Hammell	November 16, 2018
Registrar's Office Approval: Pam McGuigan	November 20, 2018
APCC Meeting Date Approval	December 20, 2018

CALENDAR & CURRICULUM CHANGE

Motion #63

Revision is for a: **Course Description Change**

Faculty/School/Department: **Science**

Department/Program(s)/Academic Regulations: **Physics**

MOTION: To approve the proposed changes for PHYSICS 1110 General Physics I.

<p>1110 GENERAL PHYSICS I This course emphasizes the fundamentals of mechanics and is intended as a first course in physics for students in the physical sciences and engineering, or who are planning to take Physics courses beyond the first-year level. Topics include vectors, kinematics, Newton's laws of motion, gravitation, circular motion, static equilibrium, moment of inertia, torque, rotational motion, and conservation of energy and momentum. PREREQUISITE: Proficiency in High School algebra, trigonometry and graphing is expected. Grade 12 Physics is highly recommended. It is required that Mathematics 191 be taken at least concurrently. Three hours lecture, three hours laboratory or tutorial per week</p>	<p>1110 GENERAL PHYSICS I This course emphasizes the fundamentals of mechanics and is intended as a first course in physics for, <u>but not restricted to</u>, students <u>considering degrees</u> in physics, <u>chemistry, mathematics and computer science</u>. in the physical sciences and engineering, or who are planning to take Physics courses beyond the first year level. Topics include vectors, kinematics, Newton's laws of motion, gravitation, circular motion, static equilibrium, moment of inertia, torque, rotational motion, and <u>momentum</u>, conservation of energy <u>and an introduction to special relativity</u>. momentum. PREREQUISITE: Proficiency in High School algebra, trigonometry and graphing is expected. Grade 12 Physics is highly recommended. It is required that Mathematics 191 <u>Q</u> be taken at least concurrently. Three hours lecture, three hours laboratory or tutorial per week</p>
---	---

Rationale for Change: The Faculty of Sustainable Design Engineering is removing PHYS 1110 from their program, so reference to engineering students needs to be removed. The description is also clarified by removing the reference to 'physical sciences' which is not all that well understood by high school students and replacing with more descriptive language about degree programs for which this course is helpful to students. In addition, with the loss of the engineering cohort, the course content can be refocused on the physical sciences, removing some topics and introducing new ones.

Effective Date: May 2019

Implications for Other Programs: None

Impact on Students Currently Enrolled: None

Authorization	Date:
Departmental Approval: Dr. William Whelan	November 2, 2018
Faculty/School Approval: Science Council	November 5, 2018
Faculty Dean's Approval: Kathy Gottschall-Pass	November 5, 2018
Graduate Studies Dean's Approval: N/A	N/A
Registrar's Office Approval: Pam McGuigan	November 20, 2018
APCC Meeting Date Approval	December 20, 2018

CALENDAR & CURRICULUM CHANGE

MOTION #64

Revision is for a: **Course Description Change**

Faculty/School/Department: **Science**

Department/Program(s)/Academic Regulations: **Physics**

MOTION: To approve the proposed changes for PHYSICS 1120 General Physics II.

<p>PHYS-1120 GENERAL PHYSICS II This course is a continuation of Physics 1110 and is intended for, but not restricted to, those students who wish to pursue further studies in the physical sciences or engineering. Topics include oscillations, wave motion, sound and light, thermodynamics, fluid mechanics, and electricity and magnetism. NOTE: Students may obtain credit for Physics 1220 or 1120 but not both. PREREQUISITE: Physics 1110, and Mathematics 1910 or permission of the instructor; COREQUISITE: Math 1920 Three hours lecture, three hours laboratory or tutorial per week</p>	<p>PHYS-1120 GENERAL PHYSICS II This course is a continuation of Physics 1110 and is intended for, but not restricted to, those students <u>considering a degree in physics, chemistry, mathematics or computer science, who wish to pursue further studies in the physical sciences or engineering.</u> Topics include <u>fluid mechanics, thermodynamics,</u> oscillations, wave motion, sound and light, thermodynamics, fluid mechanics, and electricity, and magnetism <u>and optics.</u> NOTE: Students may obtain credit for Physics 1220 or 1120 but not both. PREREQUISITE: Physics 1110, and Mathematics 1910 or permission of the instructor; COREQUISITE: Math 1920 Three hours lecture, three hours laboratory or tutorial per week</p>
--	---

Rationale for Change: The Faculty of Sustainable Design Engineering is removing PHY1120 from their program, so reference to engineering students needs to be removed. The description is also clarified by removing the reference to ‘physical sciences’ which is not all that well understood by high school students and replacing with more descriptive language about degree programs for which this course is helpful to students. In addition, the order of the topics has been revised to reflect current practice.

Effective Date: May 2019

Implications for Other Programs: None

Impact on Students Currently Enrolled: None

Authorization	Date:
Departmental Approval: Dr. William Whelan	November 2, 2018
Faculty/School Approval: Science Council	November 5, 2018
Faculty Dean’s Approval: Kathy Gottschall-Pass	November 5, 2018
Graduate Studies Dean’s Approval: N/A	N/A
Registrar’s Office Approval: Pam McGuigan	November 20, 2018
APCC Meeting Date Approval	December 20, 2018