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MEMORANDUM

ATTENTION Senate
FROM Wade Parkhouse, Chair
Senate Committee on
Undergraduate Studies
RE: New Course Proposals

DATE July 10, 2020
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For information:

Acting under delegated authority at its meeting of July 9, 2020 SCUS approved the following curriculum revisions effective Summer 2021.

a. Faculty of Applied Sciences (SCUS 20-54)1. School of Sustainable Energy Engineering Program

- (i) New Course Proposal: SEE 464-3, Energy Systems Modeling for Buildings

b. Faculty of Environment (SCUS 20-55)1. Department of Archaeology

- (i) New course proposals: ARCH 271-3, Interpreting the Past: An Introduction to Archaeological Theory

Senators wishing to consult a more detailed report of curriculum revisions may do so on the Senate Docushare repository at <https://docushare.sfu.ca/dsweb/View/Collection-12682>.

COURSE SUBJECT NUMBER

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

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

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

COURSE DESCRIPTION — 50 words max. Attach a course outline. Don't include WQB or prerequisites info in this description box.

Introduction to modeling energy systems for buildings, focusing on envelope and mechanical systems, and their effects on energy use. Using the applicable codes and standards to define schedules for the buildings, calculate heating and cooling loads, and set sustainability targets. Applying industry standard software to model, and experiment with innovative methods to enhance energy use, and reach sustainability targets.

REPEAT FOR CREDIT ☐ YES ☒ NO Total completions allowed Within a term? ☐ YES ☐ NO

LIBRARY RESOURCES

NOTE: Senate has approved (S.93-11) that no new course should be approved by Senate until funding has been committed for necessary library materials. Each new course proposal must be accompanied by the email that serves as proof of assessment. For more information, please visit www.lib.sfu.ca/about/overview/collections/course-assessments.

RATIONALE FOR INTRODUCTION OF THIS COURSE

Approximately 40% of global energy usage is consumed by buildings. With emerging concepts such as; Passive Houses and Net-Zero Buildings, recently introduced STEP energy regulations by BC Building Code, and ongoing changes in building technologies, there is a huge demand for up-to-date knowledge in commercial and residential buildings energy sector.

Besides, real estate includes more than 22% of Canada's and more than 18% of BC's economy. Real estate is the second largest expense in the income statement of most companies and it is the third most valuable asset in most organizations portfolio. Operation cost accounts for more than 70% of the total building ownership cost, of which energy cost alone, represents around 30%.

The above mentioned facts ensure ongoing demand for engineers with knowledge of energy systems, capable of designing systems to enhance energy efficiency of building, and reduce energy-related operation cost.

This course will provide SEE student with knowledge they need, to enter the construction industry as energy and sustainability engineers and contribute to BC's and Canada's sustainability goals.

SCHEDULING AND ENROLLMENT INFORMATION

Effective term and year (e.g. FALL 2016)

Term in which course will typically be offered ☐ Spring ☐ Summer ☒ Fall

Other (describe)

Will this be a required or elective course in the curriculum? ☐ Required ☒ Elective

What is the probable enrollment when offered? Estimate:

UNITS

Indicate number of units:

Indicate no. of contact hours: Lecture Seminar Tutorial Lab Other; explain below

OTHER

FACULTY

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

WQB DESIGNATION

(attach approval from Curriculum Office)

PREREQUISITE AND / OR COREQUISITE

EQUIVALENT COURSES [For more information on equivalency, see Equivalency Statements under [Information about Specific Course components.](#)]

1. SEQUENTIAL COURSE [is not hard coded in the student information management system (SIMS).]

Students who have taken (*place relevant course(s) in the blank below (ex: STAT 100)*) **first** may not then take this course for further credit.

N/A

2. ONE-WAY EQUIVALENCY [is not hard coded in SIMS.]

(*Place relevant course(s) in the blank below (ex: STAT 100)*) will be accepted in lieu of this course.

N/A

3. TWO-WAY EQUIVALENCY [is hard coded and enforced by SIMS.]

Students with credit for (*place relevant course(s) in the blank below (ex: STAT 100)*) may not take this course for further credit.

N/A

Does the partner academic unit agree that this is a two-way equivalency? ☐ YES ☐ NO

Please also have the partner academic unit submit a course change form to update the course equivalency for their course(s).

4. SPECIAL TOPICS PRECLUSION STATEMENT [is not hard coded in SIMS.]

FEES

Are there any proposed student fees associated with this course other than tuition fees? ☐ YES ☒ NO

COURSE – LEVEL EDUCATIONAL GOALS (OPTIONAL)

1. Understand the purpose and function of different building components such as structure, envelope, and mechanical systems.
2. Apply fundamental principles of thermodynamics, fluid mechanics and heat transfer, plus the additional knowledge obtained in the course to calculate a building heating and cooling load and predict its energy usage behavior.
3. Understand the necessity and effects of compromises and trade-offs on building sustainability measures.
4. Given a real-world building, specify its energy usage over time, by obtaining, estimating, and combining various inputs such as: effective insulation performance, mechanical systems type and efficiency, and internal and external loads (i.e. lighting, occupants, equipment, solar, etc.).
5. Model a building energy system and use the result to propose existing or innovative designs (e.g. economizer, heat/energy recovery, or energy storage) to improve energy efficiency.
6. Given a prepared lab setting of typical mechanical systems, in teams or pairs, measure laboratory data and interpret the outcome using the knowledge obtained in course.

RESOURCES

List any outstanding resource issues to be addressed prior to implementation: space, laboratory equipment, etc:

The SEE program will be housed in a new building in Surrey adjacent to the current SFU Surrey campus. The building is ready for occupancy by the program start date of Fall 2019. FAS curriculum development staff are regularly liaising with SFU Facilities staff to ensure the required resources will be available.

OTHER IMPLICATIONS

Final exam required ☒ YES ☐ NO

Criminal Record Check required ☐ YES ☒ NO

OVERLAP CHECK

Checking for overlap is the responsibility of the Associate Dean.

Each new course proposal must have confirmation of an overlap check completed prior to submission to the Faculty Curriculum Committee.

Name of Originator

Mehran Ahmadi, Lecturer, Sustainable Energy Engineering, Faculty of Applied Science

COURSE SUBJECT ARCH

NUMBER 271

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

Interpreting the Past: An Introduction to Archaeological Theory

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

Interpreting the Past

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

COURSE DESCRIPTION — 50 words max. Attach a course outline. Don't include WQB or prerequisites info in this description box.

Examines how archaeologists develop explanations of human behaviour, cultural development, and cultural evolution. Reviews the historical development of social and biological theory applied in archaeology and examines how these various theoretical perspectives have shaped interpretations of the past.

REPEAT FOR CREDIT ☐ YES ☒ NO Total completions allowed Within a term? ☐ YES ☐ NO

LIBRARY RESOURCES

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RATIONALE FOR INTRODUCTION OF THIS COURSE

The Department of Archaeology currently has a single fourth year course (ARCH 471) specifically devoted to presenting the history and application of social and biological theory in archaeology. Some students find this overwhelming and also consistently comment that a more general and accessible introduction to archaeological theory would better prepare them for other upper level courses in archaeology. This new course will provide a more gradual entry into the subject matter and better prepare students for upper level courses in archaeology.

SCHEDULING AND ENROLLMENT INFORMATIONEffective term and year (e.g. FALL 2016) Term in which course will typically be offered ☐ Spring ☐ Summer ☒ FallOther (describe) Will this be a required or elective course in the curriculum? ☒ Required ☐ ElectiveWhat is the probable enrollment when offered? Estimate: **UNITS**Indicate number of units: Indicate no. of contact hours: Lecture Seminar Tutorial Lab Other; explain below**OTHER****FACULTY**

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

WQB DESIGNATION

(attach approval from Curriculum Office)

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COURSE – LEVEL EDUCATIONAL GOALS (OPTIONAL)



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List any outstanding resource issues to be addressed prior to implementation: space, laboratory equipment, etc:

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Name of Originator

Robert Muir