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**MEMORANDUM**

ATTENTION Senate
FROM Paul Kingsbury, Vice-Chair
Senate Committee on Undergraduate Studies
RE: New Course Proposals

DATE April 4, 2025
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**For information:**

Acting under delegated authority at its meeting of April 3, 2025 SCUS approved the following curriculum revisions effective Spring 2026.

**a. Faculty of Applied Sciences**

1. School of Engineering Science

(i) New Course Proposals:

- TEKX 102-3, Engineering Made Simple: Everyday Engineering Concepts for Non-Engineers *(SCUS 25-67)*
- TEKX 103-3, Engineering Made Simple: Understanding Basic Electrical Circuit Theory Powering Everyday Life *(SCUS 25-68)*

**b. Faculty of Environment**

1. Department of Archaeology

(i) New Course Proposal: ARCH 222-3, Uncovering the Secrets of the Dead *(SCUS 25-69)*

**COURSE SUBJECT** TEKX **NUMBER** 102

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

Engineering Made Simple: Everyday Engineering Concepts for Non-Engineers

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

Everyday Engineering Concepts

**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.

Introduces non-engineers to fundamental engineering concepts like systems thinking, signal processing, and AI, focusing on their everyday applications. Through relatable examples and cutting-edge technologies, students will explore how engineering shapes modern life, from noise reduction and digital media to smart devices, artificial intelligence, health care and emerging innovations.

**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**

In an increasingly technology-driven world, understanding the foundational principles of engineering is essential for everyone—not just engineers. Many of the tools and technologies we rely on daily, such as smartphones, streaming services, smart home devices, and AI-powered assistants, are underpinned by concepts from engineering and signal processing. However, these principles often remain inaccessible to non-engineers, creating a disconnect between the technology people use and their understanding of how it works. This course bridges that gap by providing a clear, relatable introduction to core engineering ideas, empowering students from non-technical backgrounds to appreciate the science behind modern innovations and make more informed decisions as users and consumers of technology.

Beyond personal relevance, this course also addresses the growing need for interdisciplinary awareness in problem-solving. By exposing students to systems thinking, digital signal processing, and emerging technologies like AI and IoT, the course cultivates a broader perspective on how engineering principles apply to real-world challenges across fields. Whether it's exploring sustainable energy solutions, or learning how noise reduction improves communication, students will develop critical thinking skills and technical literacy that will enhance their ability to navigate and contribute to an increasingly engineered world. This course serves as both an eye-opener to the invisible workings of technology and a foundation for exploring how engineering impacts everyday life.

The roots of engineering are deeply intertwined with societal needs, emerging as solutions to challenges posed by the natural world. Early engineering innovations, such as the development of aqueducts to deliver water to cities, arose from humanity's need to control and harness natural resources. Similarly, the Industrial Revolution marked a turning point where societal demand for mass production led to transformative engineering ideas like the steam engine, which tamed mechanical energy for human use.

This course builds on that historical foundation to show how modern engineering continues to address societal challenges, from renewable energy to digital communication. The same principles that allowed early humans to manage natural phenomena like water flow or wind power now enable us to process massive amounts of data, develop life-saving medical devices, and create autonomous systems that interact intelligently with the world. By highlighting this continuum, the course encourages students to see engineering not just as a technical field, but as a human endeavor deeply rooted in creativity and problem-solving, continuously evolving to meet the demands of an ever-changing society.

## SCHEDULING AND ENROLLMENT INFORMATION

Effective term and year (e.g. FALL 2016) SPRING 2026

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: 50

## UNITS

Indicate number of units: 3

Indicate no. of contact hours: 3 Lecture Seminar Tutorial Lab Other; explain below

## OTHER

## FACULTY

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

Mirza Faisal Beg, Jie Liang, Ivan Bajic, Bonnie Gray, Michael Adachi

## WQB DESIGNATION

(attach approval from Curriculum Office)

## PREREQUISITE AND / OR COREQUISITE

None

**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.

**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.

**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.

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)**

## RESOURCES

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

None

## OTHER IMPLICATIONS

Final exam required ☑ YES ☐ NO

Criminal Record Check required ☐ YES ☑ NO

## OVERLAP CHECK

Checking for overlap is the responsiblity 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**

**COURSE SUBJECT** TEKX **NUMBER** 103

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

Engineering Made Simple: Understanding Basic Electrical Circuit Theory Powering Everyday Life

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

Electrical Circuits in Daily life

**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.

Introduces the fundamentals of electricity, including circuits, power systems, household wiring, and safety. Students explore electrical devices, troubleshooting, and modern innovations like electric vehicles. With practical applications and historical insights, the course equips learners with essential knowledge for understanding, using, and interacting safely with electrical systems in everyday life.

**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**

Electricity is fundamental to modern life, powering homes, workplaces, and the countless devices we rely on daily. Yet, despite its ubiquity, many individuals, particularly those outside technical fields, lack a foundational understanding of how electricity works. This course, "Understanding Basic Electrical Circuit Theory Powering Everyday Life," is designed to address this gap, providing a comprehensive introduction to the principles of electricity for university undergraduates from non-engineering disciplines. Through meticulously structured lectures that will include examples and demonstrations, students will explore the generation, transmission, and usage of electricity, gaining insights into its critical role in enabling modern conveniences and its profound impact on society.

The course begins with a strong foundation in fundamental electrical concepts such as voltage, current, resistance, and circuit configurations. These topics serve as the building blocks for understanding more complex applications, including household wiring, electrical safety, and the operation of everyday devices. Real-world examples and practical demonstrations, such as dissecting the electrical principles behind electric vehicles, will make these abstract concepts tangible and relatable. The inclusion of practical troubleshooting techniques ensures that students are equipped with the tools and knowledge to address minor electrical issues, emphasizing both safety and functionality.

In addition to fostering a technical understanding, the course aims to instill an appreciation for the historical development of electrical systems. By examining the evolution of power generation and distribution—from early discoveries to modern innovations—students will understand the pivotal role electricity has played in shaping society. This historical perspective not only highlights the ingenuity of engineers and inventors but also contextualizes the challenges and advancements that have led to today's sophisticated electrical networks.

By the end of the course, students will have a well-rounded understanding of electricity's principles and applications, empowering them to interact more confidently and safely with electrical systems in their daily lives. Beyond technical knowledge, they will develop a deeper appreciation for the engineering marvels that sustain modern life. This foundational course bridges the gap between technical and non-technical fields, equipping students with the knowledge and practical skills to engage with electricity in a way that is both informed and responsible.

## SCHEDULING AND ENROLLMENT INFORMATION

Effective term and year (e.g. FALL 2016) SPRING 2026

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: 50

## UNITS

Indicate number of units: 3

Indicate no. of contact hours: 3 Lecture Seminar Tutorial Lab Other; explain below

## OTHER

Course will be run as a hybrid face-to-face and online course to enable a wider audience to take the course

## FACULTY

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

Mirza Faisal Beg, Jie Liang, Ivan Bajic, Bonnie Gray, Michael Adachi

## WQB DESIGNATION

(attach approval from Curriculum Office)

## PREREQUISITE AND / OR COREQUISITE

None

**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.

**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.

**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.

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)**

## RESOURCES

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

None

## OTHER IMPLICATIONS

Final exam required ☑ YES ☐ NO

Criminal Record Check required ☐ YES ☑ NO

## OVERLAP CHECK

Checking for overlap is the responsiblity 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**

**COURSE SUBJECT** ARCH **NUMBER** 222

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

Uncovering the Secrets of the Dead

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

Secrets of the Dead

**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.

After we die, our bones are often all that is left of our bodies, and there is a great deal we can decipher about the deceased from these bones. This course is an examination of what we can learn from the dead – more specifically from their bones and about who they were, how they lived, and how they died; whether recently or millions of years ago.

**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**

In recent years, the Department of Archaeology has experienced an increasing interest in biological anthropology courses and the Certificate in Biological Anthropology. Most of our course offerings in this stream are at the 300- and 400-level, with ARCH 131 (Human Origins) as the introductory, and only, lower-level course. We currently lack a 200-level course in biological anthropology which links the lower and upper level course content and provides continuity in learning goals and outcomes. Consequently, this new course will develop concepts and skills introduced in ARCH 131, which will further be reinforced in our 300-level courses in the biological anthropology stream (ARCH 322, 323, 373, 383, and 385), providing better preparation for students enrolling in them. This new 200-level course will also provide complementary knowledge and skills that and address the learning goals and outcomes of other courses in our program, namely ARCH 226 (Shamans, Sacrifice and Psychedelics), ARCH 377 (Historical Archaeology) and Special Topics Courses in Biological Anthropology (ARCH 322, 323) and field schools, including the Biological Anthropology Field Practicum (ARCH 436).

## SCHEDULING AND ENROLLMENT INFORMATION

Effective term and year (e.g. FALL 2016) Spring 2026

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: 50-100

## UNITS

Indicate number of units: 3

Indicate no. of contact hours: 3 Lecture ☐ Seminar ☐ Tutorial ☐ Lab ☐ Other; explain below

## OTHER

## FACULTY

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

Hugo Cardoso, Casey Kirkpatrick, Dongya Yang, Mark Collard, Dennis Sandgathe

## WQB DESIGNATION

(attach approval from Curriculum Office)

## PREREQUISITE AND / OR COREQUISITE

ARCH 131 or 12 units.

**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).]

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**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.

**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.

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)**

At the end of this course, the student will be able to:

1. Describe the scientific and educational value of human remains/skeletons,

2. Identify the ethical principles in current debates associated with the study of human remains/skeletons, to:
   a. Describe how moral values and ethical dilemmas are culturally situated, particularly with reference to the history of colonization,
   b. Assess how scientific values and ethical dilemmas, are impacted by time (ancient vs recent) and the nature of the information (physical vs metaphysical)

3. Explain why human remains are the most direct, and tangible source of information about who lived in the past, namely their biology, health, behaviour, identity and death,

4. Develop and editorialize your own moral values to examine how they impact your expectations as a scientist and whether you feel justified to study human remains/skeletons.

## RESOURCES

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

None

## OTHER IMPLICATIONS

Final exam required ☐ YES ☑ NO

Criminal Record Check required ☐ YES ☑ NO

## OVERLAP CHECK

Checking for overlap is the responsiblity 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**

Hugo Cardoso