The following Motions and Documents were considered by the GFC Programs Committee at its Thursday, June 22, 2023 meeting:

Agenda Title: **Course, Minor Program, and Minor Regulation Changes**
- Augustana
- Public Health
- Saint Jean
- Science

CARRIED MOTION:
THAT the GFC Programs Committee approve, with delegated authority from General Faculties Council, the attached submissions from the Faculties of Augustana, Public Health, Saint Jean, and Science.

FINAL Item 4

Agenda Title: **Proposed New Bachelor of Science in Mechatronics and Robotics Engineering Cooperative Program**

CARRIED MOTION:
MOTION THAT the GFC Programs Committee recommends that the Board of Governors approve the proposed Bachelor of Science in Mechatronics and Robotics Engineering Cooperative Program for implementation upon final approval.

FINAL Item 6

Agenda Title: **Proposed Non-Credit Certificate in Computer Game Design**

CARRIED MOTION:
THAT the GFC Programs Committee, with delegated authority from General Faculties Council, approve the Microcredential Certificate (non-credit) in Computer Game Design.

FINAL Item 7

Agenda Title: **Proposed Non-Credit Executive Certificate in Municipal Leadership**

CARRIED MOTION:
THAT the GFC Programs Committee approve, with delegated authority from General Faculties Council, the proposed Executive Certificate in Municipal Leadership Program, to take effect upon approval.

FINAL Item 8

Agenda Title: **Proposed Revisions to Admission Regulations for Rural Applicants for the Doctor of Medicine Program**

CARRIED MOTION:
THAT the GFC Programs Committee approve, with delegated authority from General Faculties Council, the attached proposal to allocate the 20 novel MD Program seats to qualified Rural applicants for the upcoming

Admissions cycle opening July 1, 2023 (Class of 2028), as proposed by the Faculty of Medicine & Dentistry and set forth in Attachment 1.

FINAL Item 9

FINAL ITEM NO. 4

Decision ☒ **Discussion** ☐ **Information** ☐

ITEM OBJECTIVE: To approve course, minor program, and minor regulations changes for the Faculties of Education, Law, Medicine and Dentistry, and Nursing.

DATE	June 22, 2023
TO	GFC Programs Committee
RESPONSIBLE PORTFOLIO	Provost and Vice-President (Academic)

MOTION: THAT the GFC Programs Committee approve, with delegated authority from General Faculties Council, the attached submissions from the Faculties of Augustana, Public Health, Saint Jean, and Science.

EXECUTIVE SUMMARY:

All routine course, minor program, and minor regulation changes that do not involve or affect other Faculties or units, and do not form part of a proposal for a new program or a substantive program change, are approved regularly by the GFC Programs Committee in an omnibus motion.

See individual item for Faculty Council approval information.

Supporting Materials:

Attachments:
1. Augustana
2. Public Health
3. Saint Jean
4. Science

GOVERNANCE OUTLINE

UNIVERSITY OF ALBERTA

Calendar Change Request Form
for Program and Regulation Changes
See the Calendar Guide for tips on how to complete this form.

Faculty (& Department or Academic Unit):	Augustana - Departments of Science
Contact Person:	Jonathan Hawkins
Level of change: (choose one only)	☑ Undergraduate
	☐ Graduate
Type of change request: (check all that apply)	☑ Program
	☐ Regulation
For which term is this intended to take effect?	Fall 2023
Does this proposal have corresponding course changes? (Should be submitted at the same time)	No

Rationale

Things to consider (maximum 500 words): Why is this being changed; How will it benefit students/department/unit; How is this comparable to similar programs (internal or external); Historical context; Impacts to administration or program structure; Consultation with stakeholders

Currently, students who wish to enroll in the Chemical and Physical Sciences major from high school require both Chemistry 30 and Biology 30 (among other courses). As chemistry is a central theme of the Chemical and Physical Sciences major, the Chemistry 30 admission requirement makes perfect sense. However, the Biology 30 admission requirement has proven to be a barrier to students wishing to enroll in the Chemical and Physical Sciences major because it is not an intuitive pre-requisite course for Chemical and Physical Sciences.

As well, there are a number of additional issues with the Biology 30 admission requirement, which have been summarized below.

- The current Chemical and Physical Sciences major, which only contains the Chemistry stream, does not contain any required biology courses. As such, students wishing to pursue this stream should not be required to have Biology 30.
- In the near future, a Physics stream in the Chemical and Physical Sciences major may be introduced and this new stream also would not contain any required biology courses. Students wishing to pursue this stream would benefit from having Physics 30 rather than Biology 30 but we cannot have different admission requirements for different streams within the same major.

In order to address the issues mentioned above and to make it easier for students to enroll in the Chemical and Physical Sciences major, we propose eliminating Biology 30 as an admission requirement and replacing it with any science-based 30 course (i.e. Biology 30, Physics 30 or Science 30). Implementing such a change will also mean that academic advisors can advise entering students on which science-based 30 course would be most beneficial to them for enrollment in a particular stream within the Chemical and Physical Sciences major.

Calendar Copy

URL in current Calendar (or "New page") https://calendar.ualberta.ca/content.php?catoid=39&navoid=12301

Current Copy: ~~Removed language~~	Proposed Copy: New language

Bachelor of Science
High School Applicants
Subject Requirements
1. English Language Arts 30-1
2. Mathematics 30-1 (for a major in **Physical Education**, Mathematics 30-2 may be presented for admission).
3. Two subjects from Group C (for a major in **Computing Science**, one subject from Group A may be presented in lieu of a second Group C subject; see additional requirements below for other specific majors and minors)
4. One subject from Group A, B, C or Physical Education 30, Aboriginal Studies 30 or other approved 30-level subject.

For other approved 30-level subjects contact Augustana Faculty Student Academic Services Office at Future Students | Augustana Campus or phone 780-679-1132.

Additional Requirements
1. For a major in **Chemical and Physical Sciences**, ~~Biology 30 and~~ Chemistry 30 are required.
2. For a major in **Environmental Science**, Biology 30 and Chemistry 30 are required.
3. For a major in **Integrative Biology**, Biology 30 and Chemistry 30 are required.
4. For a minor in **Music**, completion of a music questionnaire is required. Contact the Augustana Faculty Department for more information. Also see Augustana under Admission and Readmission Deadlines.
5. For a major in **Physical Education**, Biology 30 and Chemistry 30 are required.

Bachelor of Science
High School Applicants
Subject Requirements
1. English Language Arts 30-1
2. Mathematics 30-1 (for a major in **Physical Education**, Mathematics 30-2 may be presented for admission).
3. Two subjects from Group C (for a major in **Computing Science**, one subject from Group A may be presented in lieu of a second Group C subject; see additional requirements below for other specific majors and minors)
4. One subject from Group A, B, C or Physical Education 30, Aboriginal Studies 30 or other approved 30-level subject.

For other approved 30-level subjects contact Augustana Faculty Student Academic Services Office at Future Students | Augustana Campus or phone 780-679-1132.

Additional Requirements
1. For a major in **Chemical and Physical Sciences**, Chemistry 30 and one of Biology 30, Physics 30 or Science 30 are required.
2. For a major in **Environmental Science**, Biology 30 and Chemistry 30 are required.
3. For a major in **Integrative Biology**, Biology 30 and Chemistry 30 are required.
4. For a minor in **Music**, completion of a music questionnaire is required. Contact the Augustana Faculty Department for more information. Also see Augustana under Admission and Readmission Deadlines.
5. For a major in **Physical Education**, Biology 30 and Chemistry 30 are required.

Reviewed/Approved by:

REQUIRED: Augustana Faculty Council, May 8, 2023.

OPTIONAL: Augustana Department of Science meeting: April 21, 2023 　　　　　Augustana Curriculum Committee: April 28, 2023

Calendar Change Request Form
for Program and Regulation Changes
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UNIVERSITY OF ALBERTA

Faculty (& Department or Academic Unit):	Augustana - Department of Fine Arts and Humanities
Contact Person:	Jonathan Hawkins
Level of change: (choose one only)	☑ Undergraduate
	☐ Graduate
Type of change request: (check all that apply)	☑ Program
	☐ Regulation
For which term is this intended to take effect?	Fall 2023
Does this proposal have corresponding course changes? (Should be submitted at the same time)	No

Rationale

Things to consider (maximum 500 words): Why is this being changed; How will it benefit students/department/unit; How is this comparable to similar programs (internal or external); Historical context; Impacts to administration or program structure; Consultation with stakeholders

These changes offer students and advisors additional recommendations in choosing which sciences courses they wish to have count towards their Creativity and Culture Major. AUENG 420 was on the Reserve list at the time this course list was created - now that the course is being offered again, it should count towards this requirement on the Creativity and Culture major.

Calendar Copy

URL in current Calendar (or "New page")
https://calendar.ualberta.ca/preview_program.php?catoid=39&poid=47827&returnto=12337

Current Copy: ~~Removed language~~	Proposed Copy: New language
Creativity and Culture Program Requirements [Augustana] Creativity and Culture combines the study of Text and Theory, Creative Practice, and Language and requires a minimum of 63 units to complete; students who choose to pursue a specialization in Visual Art, Drama, or Music will require 75 units. Text and Theory elements are drawn from courses in Art History, Classical Studies, English, Music History, Philosophy, Religion, and French, German, and Scandinavian Literature.	**Creativity and Culture Program Requirements [Augustana]** Creativity and Culture combines the study of Text and Theory, Creative Practice, and Language and requires a minimum of 63 units to complete; students who choose to pursue a specialization in Visual Art, Drama, or Music will require 75 units. Text and Theory elements are drawn from courses in Art History, Classical Studies, English, Music History, Philosophy, Religion, and French, German, and Scandinavian Literature.

Creative Practice elements include courses in Studio Art, Creative Writing, Drama, and Music.

The Language element will typically be satisfied by French, German, Latin, or Norwegian language courses at the appropriate level for a student

Requirements
3 units at the 100-level in Text and Theory from:
- AUENG 102 - Critical Reading, Critical Writing
- AUSCA 142 - Viking Age Mythology

3 units at the 100-level in Text and Theory from:
- AUART 100 - Introduction to Art History and Visual Culture
- AUMUS 170 - Tuning In: An Introduction to Music

6 units at the 100-level in Creative Practice from:
- AUART 111 - Making Art: First Steps
- AUDRA 144 - Introduction to the Dramatic Process
- AUMUS 100 - Introduction to Music Theory **OR**
- AUMUS 160 - Theoretical and Analytical Studies I

Note:
Students may only use one of AUMUS 100 or 160 to fulfill this requirement. Students intending to complete the Music Specialization must complete AUMUS 160.

6 units in a Language other than English from:
- AUFRE 101 - Beginners' French I
- AUFRE 102 - Beginners' French II
- AUFRE 201 - Intermediate French I
- AUFRE 202 - Intermediate French II
- AUGER 101 - Beginners' German I
- AUGER 102 - Beginners' German II
- AUGER 201 - Intermediate German I
- AUGER 202 - Intermediate German II
- AULAT 101 - Beginners' Latin I
- AUSCA 101 - Beginners' Norwegian I

- AUSCA 102 - Beginners' Norwegian II
- AUSCA 201 - Intermediate Norwegian I
- AUSCA 202 - Intermediate Norwegian II
- AUSPA 101 - Beginners' Spanish I
- AUSPA 102 - Beginners' Spanish II
- AUSPA 201 - Intermediate Spanish I
- AUSPA 202 - Intermediate Spanish II

Note:
Language courses completed through study abroad programs or in an approved French immersion program in Canada also count towards this requirement.

12 units at the 200-level in Text and Theory from:
- AUART 220 - Modern Life, Modern Art
- AUART 223 - Canadian Art
- AUART 224 - Art and Its Histories
- AUART 225 - Photography: History and Theory
- AUART 260 - Selected Topics in Art History
- AUART 261 - Selected Topics in Art History
- AUART 262 - Selected Topics in Art History
- AUART 265 - Selected Topics in Art History Tour
- AUART 281 - Sex, Gender and Art
- AUART 289 - Studies in Visual Culture
- AUDRA 201 - History and Critical Analysis of Theatre
- AUENG 205 - Children's Literature
- AUENG 206 - Native Children's Literature
- AUENG 213 - The English Language
- AUENG 220 - Classical Foundations of Western Literature
- AUENG 221 - Chaucer and Premodern Society
- AUENG 225 - The World of the Middle Ages
- AUENG 230 - The Early English Renaissance
- AUENG 231 - The Later English Renaissance
- AUENG 233 - Shakespeare
- AUENG 240 - Restoration and Eighteenth Century Literature and Culture
- AUENG 260 - Literary Animal Studies
- AUENG 270 - America, Exceptionalism and Empire
- AUENG 271 - American Law, Literature and Justice
- AUENG 280 - Canadian Literature to 1950

- AUENG 281 - Canadian Literature since 1950 - AUENG 298 - Selected Topics in English Studies - AUENG 299 - Selected Topics in English Studies - AUHIS 207 - History of the Roman Republic - AUHIS 208 - History of the Roman Empire - AUHUM 276 - Introduction to Visual Culture Studies - AUGER 291 - German Drama in Translation - AUIND 240 - Introduction to Indigenous Cultural Production - AUMUS 224 - Music from the Ancient to Baroque Eras - AUMUS 225 - Music from the Classical Era to the Present Day - AUMUS 226 - Music and the Moving Image - AUMUS 252 - The Child Voice - AUPHI 200 - Metaphysics: Theories of Reality - AUPHI 240 - Ancient Political Philosophy - AUPHI 241 - Modern Political Philosophy - AUPHI 250 - History of Christian Thought - AUPHI 277 - Women, Darkness and Crooked Things: Feminist Philosophy - AUPHI 290 - Philosophy of Contemporary Culture - AUREL 202 - Women's Writing and Feminist Theology - AUREL 208 - Jesus of Nazareth in Contemporary Theology - AUREL 212 - Introduction to the Hebrew Bible (Old Testament) - AUREL 216 - The Hebrew Prophets - AUREL 250 - Theories of Religion - AUREL 282 - Major Religious Traditions: Middle East - AUREL 290 - Selected Topics in Religion - AUREL 291 - Selected Topics in Religion - AUSCA 231 - Scandinavian Culture and Civilization - AUSCA 237 - Selected Topics in Scandinavian Literature - AUSCA 261 - Scandinavian Folk Literature - AUSCA 271 - Personal Narratives of the North **6 units at the 200-level in Creative Practice from:**	- AUENG 281 - Canadian Literature since 1950 - AUENG 298 - Selected Topics in English Studies - AUENG 299 - Selected Topics in English Studies - AUHIS 207 - History of the Roman Republic - AUHIS 208 - History of the Roman Empire - AUHUM 276 - Introduction to Visual Culture Studies - AUGER 291 - German Drama in Translation - AUIND 240 - Introduction to Indigenous Cultural Production - AUMUS 224 - Music from the Ancient to Baroque Eras - AUMUS 225 - Music from the Classical Era to the Present Day - AUMUS 226 - Music and the Moving Image - AUMUS 252 - The Child Voice - AUPHI 200 - Metaphysics: Theories of Reality - AUPHI 240 - Ancient Political Philosophy - AUPHI 241 - Modern Political Philosophy - AUPHI 250 - History of Christian Thought - AUPHI 277 - Women, Darkness and Crooked Things: Feminist Philosophy - AUPHI 290 - Philosophy of Contemporary Culture - AUREL 202 - Women's Writing and Feminist Theology - AUREL 208 - Jesus of Nazareth in Contemporary Theology - AUREL 212 - Introduction to the Hebrew Bible (Old Testament) - AUREL 216 - The Hebrew Prophets - AUREL 250 - Theories of Religion - AUREL 282 - Major Religious Traditions: Middle East - AUREL 290 - Selected Topics in Religion - AUREL 291 - Selected Topics in Religion - AUSCA 231 - Scandinavian Culture and Civilization - AUSCA 237 - Selected Topics in Scandinavian Literature - AUSCA 261 - Scandinavian Folk Literature - AUSCA 271 - Personal Narratives of the North **6 units at the 200-level in Creative Practice from:**

- AUART 215 - Sculpture I
- AUART 230 - Special Topics in Drawing
- AUART 231 - Drawing I: A Basic Toolkit
- AUART 232 - Drawing II: The Figure
- AUART 270 - Special Topics in Painting
- AUART 271 - Painting I: A Basic Toolkit (Oil)
- AUART 272 - Painting II: Concepts and Approaches
- AUART 298 - Selected Topics in Art Studio
- AUDRA 209 - Script Analysis and Production Preparation
- AUDRA 230 - Acting Techniques I
- AUDRA 233 - Clown and Mask
- AUDRA 238 - Theatre Company
- AUDRA 239 - Theatre Company
- AUDRA 244 - Improvisation II: Workshop and Performance
- AUDRA 250 - Applied Improvisation
- AUDRA 260 - Dramaturgy and Play Analysis
- AUENG 214 - Advanced Creative Writing: Poetry
- AUENG 215 - Creative Writing
- AUMUS 260 - Theoretical and Analytical Studies II
- AUMUS 262 - Aural, Sight Singing and Keyboard Skills II
- Any 200-level AUMUS ensemble courses
- Any 200-level AUMUS applied music courses

6 units in Social Sciences from:
- Any 100-level, 200-level, or 300-level courses in AUHIS, AUPOL, or AUSOC including 3 units from the following:
  - AUIND 101 - Introduction to Indigenous Studies
  - AUIDS 230 - Introduction to Gender and Women's Studies
  - AULAN 101 - Introduction to Linguistic Analysis
  - AUSOC 262 - Mass Communication and Contemporary Society
  - AUSOC 372 - Visual Sociology

6 units in Science:
Any Augustana Science course may count towards this requirement. The following courses are recommended:

- AUCSC 111 - Introduction to Computational Thinking and Problem Solving
- AUCSC 204 - Computing Technology in Modern Society
- AUIDS 137 - Science Laboratory Experiences

9 units at the 300-level in Text and Theory from:
- AUART 380 - Directed Reading in Art History
- AUART 381 - Selected Topics in Art History and Visual Culture
- AUART 382 - Selected Topics in Art History and Visual Culture
- AUENG 306 - Indigenous Children's Literature & Theory
- AUENG 313 - The English Language
- AUENG 330 - The Early English Renaissance
- AUENG 331 - The Later English Renaissance
- AUENG 333 - Shakespeare
- AUENG 368 - Ecofeminist Theory & Women's Writing
- AUENG 380 - Canadian Literature to 1950
- AUENG 381 - Canadian Literature since 1950
- AUENG 382 - Postcolonial Literature and Theory
- AUENG 392 - Feminist Theory and Women's Writing
- AUENG 398 - Selected Topics in English Studies
- AUENG 399 - Selected Topics in English Studies
- AUFRE 305 - Aspects of Civilization and Culture of France I
- AUFRE 337 - Selected Topics in French Literature
- AUFRE 339 - Selected Topics in French Literature
- AUGER 335 - Selected Topics in German Language
- AUGER 337 - Selected Topics in German Literature
- AUHIS 300 - Topics in European History
- AUMUS 356 - Music and Wellness
- AUMUS 369 - Popular Music: Analysis, Interpretation, Meaning
- AUPHI 336 - Nineteenth-Century Philosophy
- AUPHI 345 - Philosophy in Canada
- AUPHI 350 - Philosophy of Science

- AUCSC 111 - Introduction to Computational Thinking and Problem Solving
- AUCSC 204 - Computing Technology in Modern Society
- AUENV 120 – Human Activities and the Natural Environment
- AUENV 220 – Applications in Sustainabiltiy
- AUIDS 137 - Science Laboratory Experiences
- AUPSY 103 – Introduction to Psychology
- AUSTA 153 – Introductory Applied Statistics

9 units at the 300-level in Text and Theory from:
- AUART 380 - Directed Reading in Art History
- AUART 381 - Selected Topics in Art History and Visual Culture
- AUART 382 - Selected Topics in Art History and Visual Culture
- AUENG 306 - Indigenous Children's Literature & Theory
- AUENG 313 - The English Language
- AUENG 330 - The Early English Renaissance
- AUENG 331 - The Later English Renaissance
- AUENG 333 - Shakespeare
- AUENG 368 - Ecofeminist Theory & Women's Writing
- AUENG 380 - Canadian Literature to 1950
- AUENG 381 - Canadian Literature since 1950
- AUENG 382 - Postcolonial Literature and Theory
- AUENG 392 - Feminist Theory and Women's Writing
- AUENG 398 - Selected Topics in English Studies
- AUENG 399 - Selected Topics in English Studies
- AUFRE 305 - Aspects of Civilization and Culture of France I
- AUFRE 337 - Selected Topics in French Literature
- AUFRE 339 - Selected Topics in French Literature
- AUGER 335 - Selected Topics in German Language
- AUGER 337 - Selected Topics in German Literature
- AUHIS 300 - Topics in European History
- AUMUS 356 - Music and Wellness

- AUPHI 351 - Thinking About Sex: Philosophy, Science, and the Construction of Sex
- AUPHI 355 - Philosophy and the Environment
- AUPHI 358 - Philosophy of Religion II
- AUPHI 365 - Aesthetics
- AUPHI 390 - Indigenous Thought: First Nations Thought and Knowledge
- AUPHI 392 - World Philosophy: Comparing Perspectives
- AUREL 302 - Women's Writing and Feminist Theology
- AUREL 325 - Sex and Gender in Ancient Religions
- AUREL 345 - Religion and Ecology
- AUREL 347 - Theology of Luther
- AUREL 365 - Storied Landscapes
- AUSCA 337 - Selected Topics in Scandinavian Literature

6 units at the 400-level in Text and Theory or Creative Practice from:
- AUART 421 - Selected Topics in Art History and Visual Culture
- AUART 480 - Directed Reading in Art History
- AUENG 401 - Directed Reading I
- AUENG 402 - Directed Reading II
- AUENG 441 - Selected Topics in English Studies
- AUENG 450 - Selected Topics in English Studies
- AUENG 460 - Selected Topics in English Studies
- AUFRE 403 - Directed Reading
- AUGER 403 - Directed Reading
- AUSCA 403 - Directed Reading
- AUSCA 405 - Directed Study: Area Studies
- AUSPA 403 - Directed Study: Literature

[Note that the following courses have specific prerequisites:]
- AUART 411 - Interdisciplinary Exploration: Studio
- AUART 490 - Directed Project in Visual Explorations
- AUDRA 401 - Directed Reading II
- AUDRA 409 - Script Analysis and Production Preparation
- AUDRA 420 - Performer-Created Theatre
- AUDRA 430 - Movement and Physical Theatre

- AUMUS 369 - Popular Music: Analysis, Interpretation, Meaning
- AUPHI 336 - Nineteenth-Century Philosophy
- AUPHI 345 - Philosophy in Canada
- AUPHI 350 - Philosophy of Science
- AUPHI 351 - Thinking About Sex: Philosophy, Science, and the Construction of Sex
- AUPHI 355 - Philosophy and the Environment
- AUPHI 358 - Philosophy of Religion II
- AUPHI 365 - Aesthetics
- AUPHI 390 - Indigenous Thought: First Nations Thought and Knowledge
- AUPHI 392 - World Philosophy: Comparing Perspectives
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- AUREL 345 - Religion and Ecology
- AUREL 347 - Theology of Luther
- AUREL 365 - Storied Landscapes
- AUSCA 337 - Selected Topics in Scandinavian Literature

6 units at the 400-level in Text and Theory or Creative Practice from:
- AUART 421 - Selected Topics in Art History and Visual Culture
- AUART 480 - Directed Reading in Art History
- AUENG 401 - Directed Reading I
- AUENG 402 - Directed Reading II
- ==AUENG 420 - Selected Topics in English Studies==
- AUENG 441 - Selected Topics in English Studies
- AUENG 450 - Selected Topics in English Studies
- AUENG 460 - Selected Topics in English Studies
- AUFRE 403 - Directed Reading
- AUGER 403 - Directed Reading
- AUSCA 403 - Directed Reading
- AUSCA 405 - Directed Study: Area Studies
- AUSPA 403 - Directed Study: Literature

[Note that the following courses have specific prerequisites:]
- AUART 411 - Interdisciplinary Exploration: Studio

- AUDRA 437 - Senior Showcase
- AUDRA 438 - Theatre Company
- AUDRA 439 - Theatre Company
- AUDRA 444 - Story Theater
- AUENG 416 - Advanced Creative Writing: Fiction
- AUMUS 400-level course (any offering at the 400-level)

Specializations
Students in Creativity and Culture may choose to include a specialization in Visual Art, Drama, or Music. Each specialization requires an additional 12 units, along with prescribed courses that overlap with other requirements of the major.

Requirements for Visual Art Specialization
Overlapping courses
- 6 units of the 200- and 300-level Text and Theory courses must be in Art History
- AUART 100 - Introduction to Art History and Visual Culture
- AUART 111 - Making Art: First Steps
- AUART 231 - Drawing I: A Basic Toolkit
- AUART 232 - Drawing II: The Figure
- AUART 411 - Interdisciplinary Exploration: Studio
Additional courses
- AUART 271 - Painting I: A Basic Toolkit (Oil)
- AUART 272 - Painting II: Concepts and Approaches
- AUART 331 - Drawing III: Contemporary Ideas in Drawing
- AUART 371 - Painting III: Contemporary Ideas in Painting

Requirements for Creative Writing Specialization
Overlapping Courses
- AUENG 215 - Creative Writing
- AUENG 280 - Canadian Literature to 1950
- AUENG 281 - Canadian Literature since 1950
- AUENG 416 - Advanced Creative Writing: Fiction
- 3 units at the 200-level in Creative Practice from:

- AUART 490 - Directed Project in Visual Explorations
- AUDRA 401 - Directed Reading II
- AUDRA 409 - Script Analysis and Production Preparation
- AUDRA 420 - Performer-Created Theatre
- AUDRA 430 - Movement and Physical Theatre
- AUDRA 437 - Senior Showcase
- AUDRA 438 - Theatre Company
- AUDRA 439 - Theatre Company
- AUDRA 444 - Story Theater
- AUENG 416 - Advanced Creative Writing: Fiction
- AUMUS 400-level course (any offering at the 400-level)

Specializations
Students in Creativity and Culture may choose to include a specialization in Visual Art, Drama, or Music. Each specialization requires an additional 12 units, along with prescribed courses that overlap with other requirements of the major.

Requirements for Visual Art Specialization
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- AUART 111 - Making Art: First Steps
- AUART 231 - Drawing I: A Basic Toolkit
- AUART 232 - Drawing II: The Figure
- AUART 411 - Interdisciplinary Exploration: Studio
Additional courses
- AUART 271 - Painting I: A Basic Toolkit (Oil)
- AUART 272 - Painting II: Concepts and Approaches
- AUART 331 - Drawing III: Contemporary Ideas in Drawing
- AUART 371 - Painting III: Contemporary Ideas in Painting

Requirements for Creative Writing Specialization

- ○ AUDRA 260 - Dramaturgy and Play Analysis
- ○ AUENG 214 - Advanced Creative Writing: Poetry
- ○ AUENG 218 - Creative Writing Memoir

Additional Courses
- 12 units additional at the 200- or 300-level in AUENG courses, including 6 units from:
  - ○ AUENG 214 - Advanced Creative Writing: Poetry
  - ○ AUENG 218 - Creative Writing Memoir
  - ○ AUENG 318
  - ○ AUDRA 260 - Dramaturgy and Play Analysis
  - ○ AUDRA 384 - Playwriting

Requirements for Drama Specialization
Overlapping courses
- AUDRA 144 - Introduction to the Dramatic Process
- AUDRA 230 - Acting Techniques I
- AUDRA 239 - Theatre Company
- 3 units at 400-level in AUDRA

Additional courses
- 6 units additional at the 200-level in AUDRA courses
- AUDRA 350 - Introduction to Directing
- 3 units additional at the 300-level in AUDRA courses

Requirements for Music Specialization
Overlapping courses
- 6 units at the 200-level in Creative Practice in Music
- AUMUS 160 - Theoretical and Analytical Studies I
- AUMUS 170 - Tuning In: An Introduction to Music
- 3 units at 400-level in AUMUS

Additional courses
- AUMUS 162 - Aural, Sight Singing, and Keyboard Skills I
- AUMUS 260 - Theoretical and Analytical Studies II

Overlapping Courses
- AUENG 215 - Creative Writing
- AUENG 280 - Canadian Literature to 1950
- AUENG 281 - Canadian Literature since 1950
- AUENG 416 - Advanced Creative Writing: Fiction
- 3 units at the 200-level in Creative Practice from:
  - ○ AUDRA 260 - Dramaturgy and Play Analysis
  - ○ AUENG 214 - Advanced Creative Writing: Poetry
  - ○ AUENG 218 - Creative Writing Memoir

Additional Courses
- 12 units additional at the 200- or 300-level in AUENG courses, including 6 units from:
  - ○ AUENG 214 - Advanced Creative Writing: Poetry
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  - ○ AUENG 318
  - ○ AUDRA 260 - Dramaturgy and Play Analysis
  - ○ AUDRA 384 - Playwriting

Requirements for Drama Specialization
Overlapping courses
- AUDRA 144 - Introduction to the Dramatic Process
- AUDRA 230 - Acting Techniques I
- AUDRA 239 - Theatre Company
- 3 units at 400-level in AUDRA

Additional courses
- 6 units additional at the 200-level in AUDRA courses
- AUDRA 350 - Introduction to Directing
- 3 units additional at the 300-level in AUDRA courses

Requirements for Music Specialization
Overlapping courses
- 6 units at the 200-level in Creative Practice in Music
- AUMUS 160 - Theoretical and Analytical Studies I

- AUMUS 262 - Aural, Sight Singing and Keyboard Skills II 3 units additional at the 300-level in AUMUS	- AUMUS 170 - Tuning In: An Introduction to Music 3 units at 400-level in AUMUS **Additional courses** - AUMUS 162 - Aural, Sight Singing, and Keyboard Skills I - AUMUS 260 - Theoretical and Analytical Studies II - AUMUS 262 - Aural, Sight Singing and Keyboard Skills II 3 units additional at the 300-level in AUMUS

Reviewed/Approved by:

REQUIRED: Augustana Faculty Council - April 14, 2023.

OPTIONAL: Augustana Department of Fine Arts and Humanities meeting - March 10, 2023   Augustana Curriculum Committee - April 6, 2023

Calendar Change Request Form
for Program and Regulation Changes
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UNIVERSITY OF ALBERTA

Faculty (& Department or Academic Unit):	Augustana - Department of Science
Contact Person:	Jonathan Hawkins
Level of change: (choose one only)	☑ Undergraduate
	☐ Graduate
Type of change request: (check all that apply)	☑ Program
	☐ Regulation
For which term is this intended to take effect?	Fall 2023
Does this proposal have corresponding course changes? (Should be submitted at the same time)	No

Rationale
Things to consider (maximum 500 words): Why is this being changed; How will it benefit students/department/unit; How is this comparable to similar programs (internal or external); Historical context; Impacts to administration or program structure; Consultation with stakeholders

The change here represents the inclusion of two new courses that have been recently developed at Augustana that are eligible for inclusion as credit for experiential learning.

Calendar Copy

URL in current Calendar (or "New page") https://calendar.ualberta.ca/preview_program.php?catoid=39&poid=47829&returnto=12337	
Current Copy: ~~Removed language~~	**Proposed Copy:** New language
Major in Environmental Science [Augustana] **Requirements** **12 units in Environmental Science Core:** ● AUENV 120 - Human Activities and the Natural Environment ● AUENV 234 - Research and Field Skills in Environmental Science ● AUENV 324 - Resource and Environmental Management ● AUENV 421 - Environmental Science: History and Impacts **9 units in Biology:** ● AUBIO 111 - Functional Biology ● AUBIO 112 - Evolution and Biodiversity ● AUBIO 253 - Ecological Interactions	**Major in Environmental Science [Augustana]** **Requirements** **12 units in Environmental Science Core:** ● AUENV 120 - Human Activities and the Natural Environment ● AUENV 234 - Research and Field Skills in Environmental Science ● AUENV 324 - Resource and Environmental Management ● AUENV 421 - Environmental Science: History and Impacts **9 units in Biology:** ● AUBIO 111 - Functional Biology ● AUBIO 112 - Evolution and Biodiversity ● AUBIO 253 - Ecological Interactions

9 units in Chemistry:
- AUCHE 110 - General Chemistry I
- AUCHE 112 - General Chemistry II
  3 units from:
  - AUCHE 220 - Analysis I
  - AUCHE 341 - Introduction to Environmental Chemistry

6 units from Environmental Foundations:
- AUENV 230 - Geomorphology
- AUENV 231 - Climatology
- AUENV 233 - Soil Science and Soil Resources
- AUENV 252 - Wildlife Diversity of Alberta

6 units from Environmental Social Sciences:
- AUECO 346 - Agricultural Economics
- AUENV 327 - Environmental Education and Heritage Interpretation
- AUENV 341 - Environmental Economics
- AUHIS 375 - Canadian Environmental History
- AUHIS 475 - Canadian Environmental History
- AUPOL 328 - Environmental Politics
- AUPSY 344 - Environmental Psychology
- AUSOC 358 - Environmental Sociology

12 units from Applied Environmental Studies:
- AUBIO 315 - Advanced Biological Analysis
- AUBIO 334 - Field Studies in Environmental Science and Ecology
- AUBIO 350 - Conservation Theory and Biodiversity in Tropical Systems
- AUBIO 351 - Biogeography
- AUBIO 354 - Freshwater Ecology and Management
- AUBIO 459 - Field Studies in Tropical Ecology and Conservation
- AUCSC 113 - Foundational Introduction to Computational Thinking and Problem Solving
- AUECO 449 - Economic Methods of Project Evaluation
- AUENV 218 - Introduction to Geographic Information Systems
- AUENV 233 - Soil Science and Soil Resources
- AUENV 252 - Wildlife Diversity of Alberta
- AUENV 301 - Directed Studies
- AUENV 302 - Directed Reading
- AUENV 320 - Parks and Wilderness
- AUENV 331 - Science of the Climate Crisis
- AUENV 334 - Field Studies in Environmental Science and Ecology

- AUENV 335 - Wildlife Ecology and Management
- AUENV 351 - Biogeography
- AUENV 354 - Freshwater Ecology and Management
- AUENV 401 - Directed Studies
- AUENV 402 - Directed Reading
- AUENV 410 - Selected Topics in Environmental Studies
- AUENV 420 - Parks and Wilderness
- AUENV 425 - Environmental Impact Assessment
- AUENV 434 - Advanced Field Studies in Environmental Science and Ecology

9 units in Fine Arts and Humanities:

3-6 units from Humanities

- AUENG 102 - Critical Reading, Critical Writing
- AUENG 207
- AUENG 280 - Canadian Literature to 1950
- AUENG 368 - Ecofeminist Theory & Women's Writing
- AUPHI 355 - Philosophy and the Environment
- AUREL 263 - Spirituality and Globalization
- AUREL 345 - Religion and Ecology
- AUREL 365 - Storied Landscapes
- AUSCA 231 - Scandinavian Culture and Civilization
- AUSCA 271 - Personal Narratives of the North

3-6 units of Fine Arts:

- AUART 100 - Introduction to Art History and Visual Culture
- AUART 220 - Modern Life, Modern Art
- AUART 230 - Special Topics (Art and the Environment)
- AUART 231 - Drawing I: A Basic Toolkit
- AUART 271 - Painting I: A Basic Toolkit (Oil)
- AUART 289 - Studies in Visual Culture
- AUDRA 250 - Applied Improvisation
- AUMUS 170 - Tuning In: An Introduction to Music

3 units in Statistics:

- AUSTA 215 - Statistical Methods for the Natural Sciences

3 units from Mathematics:

- AUENV 335 - Wildlife Ecology and Management
- AUENV 351 - Biogeography
- AUENV 354 - Freshwater Ecology and Management
- AUENV 401 - Directed Studies
- AUENV 402 - Directed Reading
- AUENV 410 - Selected Topics in Environmental Studies
- AUENV 420 - Parks and Wilderness
- AUENV 425 - Environmental Impact Assessment
- AUENV 434 - Advanced Field Studies in Environmental Science and Ecology

9 units in Fine Arts and Humanities:

3-6 units from Humanities

- AUENG 102 - Critical Reading, Critical Writing
- AUENG 207
- AUENG 280 - Canadian Literature to 1950
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- AUREL 263 - Spirituality and Globalization
- AUREL 345 - Religion and Ecology
- AUREL 365 - Storied Landscapes
- AUSCA 231 - Scandinavian Culture and Civilization
- AUSCA 271 - Personal Narratives of the North

3-6 units of Fine Arts:

- AUART 100 - Introduction to Art History and Visual Culture
- AUART 220 - Modern Life, Modern Art
- AUART 230 - Special Topics (Art and the Environment)
- AUART 231 - Drawing I: A Basic Toolkit
- AUART 271 - Painting I: A Basic Toolkit (Oil)
- AUART 289 - Studies in Visual Culture
- AUDRA 250 - Applied Improvisation
- AUMUS 170 - Tuning In: An Introduction to Music

3 units in Statistics:

- AUSTA 215 - Statistical Methods for the Natural Sciences

3 units from Mathematics:

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- AUMAT 116 - Calculus Concepts and Modelling
- AUMAT 120 - Linear Algebra I

3 units from Experiential Learning:

- AUBIO 334 - Field Studies in Environmental Science and Ecology
- AUBIO 459 - Field Studies in Tropical Ecology and Conservation
- AUCSL 360 - Community Service-Learning Practicum
- AUCSL 361 - Community Service-Learning Practicum
- AUENV 334 - Field Studies in Environmental Science and Ecology
- AUENV 434 - Advanced Field Studies in Environmental Science and Ecology
- AUPED 184 - Introduction to Outdoor Education - Snowshoeing
- AUPED 281 - Explorations of the Canadian North
- AUPED 283 - Introduction to Outdoor Education - Backpacking
- AUPED 284 - Introduction to Outdoor Education - Canoeing
- AUPED 286 - Outdoor Education and Leadership
- AUPED 388 - Arctic Canoe Expedition

6 units in

- overlapping credits at the 400 level

</td><td>

- AUMAT 116 - Calculus Concepts and Modelling
- AUMAT 120 - Linear Algebra I

3 units from Experiential Learning:

- AUBIO 334 - Field Studies in Environmental Science and Ecology
- AUBIO 459 - Field Studies in Tropical Ecology and Conservation
- AUCSL 360 - Community Service-Learning Practicum
- AUCSL 361 - Community Service-Learning Practicum
- AUENV 334 - Field Studies in Environmental Science and Ecology
- AUENV 434 - Advanced Field Studies in Environmental Science and Ecology
- ==AUPED 180 - Outdoor Skills for Work and Recreation==
- AUPED 184 - Introduction to Outdoor Education - Snowshoeing
- AUPED 281 - Explorations of the Canadian North
- AUPED 283 - Introduction to Outdoor Education - Backpacking
- AUPED 284 - Introduction to Outdoor Education - Canoeing
- AUPED 286 - Outdoor Education and Leadership
- ==AUPED 380 - Solo Outdoor Experiences for Wellness==
- AUPED 388 - Arctic Canoe Expedition

6 units in

- overlapping credits at the 400 level

</td></tr>
</table>

Reviewed/Approved by:

REQUIRED: Augustana Faculty Council - April 14, 2023

OPTIONAL: Augustana Department of Science meeting - March 10, 2023
                Augustana Curriculum Committee - April 6, 2023

Calendar Change Request Form
for Program and Regulation Changes
See the Calendar Guide for tips on how to complete this form.

UNIVERSITY OF ALBERTA

Faculty (& Department or Academic Unit):	Augustana - Departments of Fine Arts and Humanities, and Social Sciences
Contact Person:	Jonathan Hawkins
Level of change: (choose one only)	☑ Undergraduate
	☐ Graduate
Type of change request: (check all that apply)	☑ Program
	☐ Regulation
For which term is this intended to take effect?	Fall 2023
Does this proposal have corresponding course changes? (Should be submitted at the same time)	No

Rationale

Things to consider (maximum 500 words): Why is this being changed; How will it benefit students/department/unit; How is this comparable to similar programs (internal or external); Historical context; Impacts to administration or program structure; Consultation with stakeholders

When the Ethics & Global Studies program was initially proposed and approved, AUIDS 370 and AUSSC 400 were placeholders in the program requirements. This proposal replaces AUIDS 370 with one of the following: AUHIS 300/360/361; AUPHI 392; AUPOL 357; and AUREL 390. It also proposes replacing AUSSC 400 with AUIDS 440.

It also adds AUENG courses to the "15-18 units additionally at the 200-level or higher" requirement. Literature constitutes an important means to reflect on and disseminate many of the key themes addressed in the Ethics and Global Studies concentration. AUENG courses regularly deal with themes pertaining to ethical choices, international relations and development, and especially the intersection of these. Given that writing is in many ways a more reflective activity than reading, it also welcomes the inclusion of creative writing courses in the program.

Calendar Copy

URL in current Calendar (or "New page") https://calendar.ualberta.ca/preview_program.php?catoid=39&poid=47827&returnto=12337	
Current Copy: Removed language	**Proposed Copy:** New language
Ethics and Global Studies Program Requirements [Augustana] Students must complete a minimum of 63 units. **Requirements** • AUHIS 121 - Topics in Global History	**Ethics and Global Studies Program Requirements [Augustana]** Students must complete a minimum of 63 units. **Requirements** • AUHIS 121 - Topics in Global History

- AUPOL 103 - Introduction to Global and Political Studies
- AUREL 100 - Introduction to Religion
- ~~AUIDS 370 - Topics in Integrative Studies~~
- ~~AUSSC 400 - Selected Topics in Social Sciences~~

Additional Requirements
6 units in Indigenous Studies (AUIND)

3 units from:
- AUPOL 200 - The Research Process
- AUSOC 236 - Research Design and Qualitative Methods

3 units from:
- AUPHI 101 - Introduction to Western Philosophy I: Ancient and Medieval Philosophy
- AUPHI 102 - Introduction to Western Philosophy II: Modern Philosophy

3 units from:
- AUPHI 260 - Ethics
- AUREL 257 - Modern Ethics

3 units in Gender & Body from:
- AUART 281 - Sex, Gender and Art
- AUIDS 230 - Introduction to Gender and Women's Studies
- AUIDS 302 - Exploring Body Issues
- AUREL 325 - Sex and Gender in Ancient Religions

3 units in a Cross-cultural Experience OR 6 units in a Modern Language other than English:

- AUPOL 103 - Introduction to Global and Political Studies
- AUREL 100 - Introduction to Religion
- AUIDS 440 - Advanced Topics in Ethics & Global Studies
- 3 units from:
  - AUHIS 300 – Selected Topics in European History
  - AUHIS 360 – Selected Topics in Canadian History
  - AUHIS 361 – Selected Topics in Canadian History
  - AUPHI 392 – World Philosophy: Comparing Perspectives
  - AUPOL 357 – Selected Topics in Comparative Politics
  - AUREL 390: Selected Topics in Religious Studies

Additional Requirements
6 units in Indigenous Studies (AUIND)

3 units from:
- AUPOL 200 - The Research Process
- AUSOC 236 - Research Design and Qualitative Methods

3 units from:
- AUPHI 101 - Introduction to Western Philosophy I: Ancient and Medieval Philosophy
- AUPHI 102 - Introduction to Western Philosophy II: Modern Philosophy

3 units from:
- AUPHI 260 - Ethics
- AUREL 257 - Modern Ethics

3 units in Gender & Body from:
- AUART 281 - Sex, Gender and Art
- AUIDS 230 - Introduction to Gender and Women's Studies
- AUIDS 302 - Exploring Body Issues
- AUREL 325 - Sex and Gender in Ancient Religions

3 units in a Cross-cultural Experience OR 6 units in a Modern Language other than English:

Typically, this requirement will be fulfilled by 6 units in a single language. The Cross-cultural Experience requirement may be satisfied by one of the following:

- AUCLA 294 - Selected Topics in Classical Studies Tour
- AUECO 254 - India Tour
- AUIDS 292 - Integrative Studies (Cuba)
- AUPOL 248 - Model United Nations/International Organization

3 units from:
- AUART 100 - Introduction to Art History and Visual Culture
- AUART 223 - Canadian Art
- AUART 224 - Art and Its Histories
- AUART 225 - Photography: History and Theory
- AUDRA 101 - Play Analysis
- AUMUS 170 - Tuning In: An Introduction to Music

6 units from:
- AUCSL 361 - Community Service-Learning Practicum
- AUCSC 111 - Introduction to Computational Thinking and Problem Solving
- AUCSC 204 - Computing Technology in Modern Society
- AUENV 120 - Human Activities and the Natural Environment
- AUENV 220 - Applications in Sustainability
- AUENV 261
- AUENV 324 - Resource and Environmental Management
- AUIDS 137 - Science Laboratory Experiences
- AUSTA 153 - Introductory Applied Statistics
- AUSTA 213 - Statistical Methods

15-18 units ~~additional in Ethics and Global Studies electives~~ at the 200-level or higher selected from AUHIS, AUPHI, AUPOL, AUREL.

Typically, this requirement will be fulfilled by 6 units in a single language. The Cross-cultural Experience requirement may be satisfied by one of the following:

- AUCLA 294 - Selected Topics in Classical Studies Tour
- AUECO 254 - India Tour
- AUIDS 292 - Integrative Studies (Cuba)
- AUPOL 248 - Model United Nations/International Organization

3 units from:
- AUART 100 - Introduction to Art History and Visual Culture
- AUART 223 - Canadian Art
- AUART 224 - Art and Its Histories
- AUART 225 - Photography: History and Theory
- AUDRA 101 - Play Analysis
- AUMUS 170 - Tuning In: An Introduction to Music

6 units from:
- AUCSL 361 - Community Service-Learning Practicum
- AUCSC 111 - Introduction to Computational Thinking and Problem Solving
- AUCSC 204 - Computing Technology in Modern Society
- AUENV 120 - Human Activities and the Natural Environment
- AUENV 220 - Applications in Sustainability
- AUENV 261
- AUENV 324 - Resource and Environmental Management
- AUIDS 137 - Science Laboratory Experiences
- AUSTA 153 - Introductory Applied Statistics
- AUSTA 213 - Statistical Methods

15-18 units additional<u>ly</u> at the 200-level or higher selected from <mark>AUENG,</mark> AUHIS, AUPHI, AUPOL, AUREL.

Reviewed/Approved by:

REQUIRED: Augustana Faculty Council - May 8, 2023.

OPTIONAL: Augustana Department of Fine Arts and Humanities meeting - March 10, 2023
Augustana Department of Social Sciences meeting - April 21, 2023.
Augustana Curriculum Committee - April 28, 2023.

Calendar Change Request Form
for Program and Regulation Changes
See the [Calendar Guide](#) for tips on how to complete this form.

UNIVERSITY OF ALBERTA

Faculty (& Department or Academic Unit):	Augustana - Departments of Social Sciences
Contact Person:	Jonathan Hawkins
Level of change: (choose one only)	☑ Undergraduate
	☐ Graduate
Type of change request: (check all that apply)	☑ Program
	☐ Regulation
For which term is this intended to take effect?	Fall 2023
Does this proposal have corresponding course changes? (Should be submitted at the same time)	No

Rationale
Things to consider (maximum 500 words): Why is this being changed; How will it benefit students/department/unit; How is this comparable to similar programs (internal or external); Historical context; Impacts to administration or program structure; Consultation with stakeholders

New 400-level courses have now been developed in a number of areas which replace the capstone AUSSC 400 selected topics course. As the program continues to grow and with the inclusion of new faculty, new courses have been developed, leading to modest program changes.

Calendar Copy

URL in current Calendar (or "New page")
https://calendar.ualberta.ca/preview_program.php?catoid=39&poid=47827&returnto=12337

Current Copy: ~~Removed language~~	Proposed Copy: New language
Law, Crime and Justice Studies Program Requirements [Augustana] **Requirements** ● AUCRI 160 - Introduction to Crime, Correction, and Community ● AUCRI 225 - Criminology: A Canadian Perspective ● AUIDS 100 - The World in Progress: Inquiry in the Social Sciences ● AUPSY 103 - Introduction to Psychology ● AUSOC 101 - Introducing Sociology: Principles and Practice ● AUSOC 232 - Theoretic Developments in Sociology I	**Law, Crime and Justice Studies Program Requirements [Augustana]** **Requirements** ● AUCRI 160 - Introduction to Crime, Correction, and Community ● AUCRI 225 - Criminology: A Canadian Perspective ● AUIDS 100 - The World in Progress: Inquiry in the Social Sciences ● AUPSY 103 - Introduction to Psychology ● AUSOC 101 - Introducing Sociology: Principles and Practice ● AUSOC 232 - Theoretic Developments in Sociology I

- AUSOC 236 - Research Design and Qualitative Methods
- ~~AUSSC 400 - Selected Topics in Social Sciences~~
- AUSTA 153 - Introductory Applied Statistics

3 units from
- AUPHI 260 - Ethics
- AUREL 257 - Modern Ethics

Additional Requirements
3 units in Gender from:
- AUHIS 271 - The History of Women in Canadian Society
- AUIDS 230 - Introduction to Gender and Women's Studies
- AUPOL 355 - Gender, Law, and Politics
- AUSOC 275 - Sex, Gender, and Society
- AUSOC 377 - Theoretical Approaches to Gender

3 units in Indigenous Studies from:
- AUHIS 369 - History of Canada's Indigenous Peoples
- AUIND 101 - Introduction to Indigenous Studies
- AUIND 201 - Introduction to Indigenous Studies
- AUIND 399 - Theories in Indigenous Studies
- AUIND 499 - Theories in Indigenous Studies

3 units in a Modern Language other than English

3 units in Fine Arts

24 units in two of the following areas of specialization, with 12 units in each specialization (see Notes below):
   Crime, Deviance and Social Control:
- AUCRI 200 - Young Offenders and the Law
- AUCRI 224 - Studies in Deviant Behaviour
- AUCRI 327 - Crimes of the Powerful
- AUCRI 353 - Law, Politics, and the Judicial Process
- ~~AUIDS 330 - Selected Topics in Law, Crime and Justice~~

- AUSOC 236 - Research Design and Qualitative Methods
- AUSTA 153 - Introductory Applied Statistics
- 6 units at the 400-level taken from any of the areas of specialization below

3 units from
- AUPHI 260 - Ethics
- AUREL 257 - Modern Ethics

Additional Requirements
3 units in Gender from:
- AUHIS 271 - The History of Women in Canadian Society
- AUIDS 230 - Introduction to Gender and Women's Studies
- AUIDS 302 - Exploring Body Issues
- AUPOL 355 - Gender, Law, and Politics
- AUSOC 275 - Sex, Gender, and Society
- AUSOC 377 - Theoretical Approaches to Gender

3 units in Indigenous Studies from:
- AUHIS 369 - History of Canada's Indigenous Peoples
- AUIND 101 - Introduction to Indigenous Studies
- AUIND 201 - Introduction to Indigenous Studies
- AUIND 300 - Selected Topics in Indigenous Studies
- AUIND 399 - Theories in Indigenous Studies
- AUIND 499 - Theories in Indigenous Studies

3 units in a Modern Language other than English

3 units in Fine Arts

24 units in two of the following areas of specialization, with 12 units in each specialization (see Notes below):
   Crime, Deviance and Social Control:
- AUCRI 200 - Young Offenders and the Law
- AUCRI 224 - Studies in Deviant Behaviour
- AUCRI 327 - Crimes of the Powerful
- AUCRI 330 - Selected Topics in Law, Crime, and Justice Studies
- AUCRI 353 - Law, Politics, and the Judicial Process

- AUSOC 222 - Canadian Social Issues

Law, History and Justice:
- AUHIS 121 - Topics in Global History
- AUHIS 260 - An Introduction to the Study of Canadian History to 1867
- AUHIS 261 - An Introduction to the Study of Canadian History, 1867 to the Present
- AUHIS 271 - The History of Women in Canadian Society
- AUHIS 360 - Selected Topics in Canadian History
- AUHIS 467 - The Collaborative Research Seminar: Selected Topics in Canadian History
- ~~AUIDS 330 - Selected Topics in Law, Crime and Justice~~
    3 units from
    - AUREL 212 - Introduction to the Hebrew Bible (Old Testament)
    - AUREL 250 - Theories of Religion

Politics, Society and Justice:
- AUPOL 329 - Popular Culture, Law and Politics
- AUPOL 355 - Gender, Law, and Politics
- AUPSY 338 - Intimate Relationships and Human Sexuality
- AUSOC 222 - Canadian Social Issues
- AUSOC 393 - Political Sociology
- AUCRI 353 - Law, Politics, and the Judicial Process
- AUENG 271 - American Law, Literature and Justice
- ~~AUENG 330 - The Early English Renaissance~~
- AUSOC 262 - Mass Communication and Contemporary Society

Profiling and Personality:
- ~~AUIDS 330 - Selected Topics in Law, Crime and Justice~~

- AUCRI 430 – Selected Topics in Law, Crime and Justice Studies
- AUCRI 450 – Sociology of Prisons
- AUSOC 222 - Canadian Social Issues

Law, History and Justice:
- AUCRI 330 - Selected Topics in Law, Crime, and Justice Studies
- AUCRI 430 – Selected Topics in Law, Crime and Justice Studies
- AUHIS 121 - Topics in Global History
- AUHIS 260 - An Introduction to the Study of Canadian History to 1867
- AUHIS 261 - An Introduction to the Study of Canadian History, 1867 to the Present
- AUHIS 271 - The History of Women in Canadian Society
- AUHIS 360 - Selected Topics in Canadian History
- AUHIS 460 – Selected Topics in History
- AUHIS 467 - The Collaborative Research Seminar: Selected Topics in Canadian History
    3 units from
    - AUREL 212 - Introduction to the Hebrew Bible (Old Testament)
    - AUREL 250 - Theories of Religion

Politics, Society and Justice:
- AUCRI 330 – Selected Topics in Law, Crime and Justice Studies
- AUCRI 350 – Race, Racism, and Crime
- AUCRI 430 – Selected Topics in Law, Crime and Justice Studies
- AUPOL 329 - Popular Culture, Law and Politics
- AUPOL 355 - Gender, Law, and Politics
- AUPSY 338 - Intimate Relationships and Human Sexuality
- AUSOC 222 - Canadian Social Issues
- AUSOC 393 - Political Sociology
- AUCRI 353 - Law, Politics, and the Judicial Process
- AUENG 271 - American Law, Literature and Justice
- AUSOC 262 - Mass Communication and Contemporary Society
- AUSOC 439 – Seminar in Contemporary Sociological Theory

Profiling and Personality:

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- AUPSY 220 - Personality
- AUPSY 240 - Social Psychology
- AUPSY 256 - Developmental Psychology
- AUPSY 346 - Community Psychology
- AUPSY 488 - Forensic Psychology

Notes:
1. Courses may only count towards one of the specializations.
2. Courses in the specializations may overlap with the general major requirements, but students must complete a minimum of 60 units in the Law, Crime and Justice major.
3. Some courses in the specializations may require prerequisites. Students should take this into consideration when planning their degree.
4. Students are encouraged to consider taking one of AUART 225 - Photography: History and Theory, or AUDRA 144 - Introduction to the Dramatic Process, or AUDRA 250 - Applied Improvisation to fulfil the fine arts requirement.
5. AUSSC 330 may be included in the streams based on the topic and determined on a case by case basis.

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- AUCRI 330 - Selected Topics in Law, Crime, and Justice Studies
- AUCRI 430 – Selected Topics in Law, Crime and Justice Studies
- AUPSY 220 - Personality
- AUPSY 240 - Social Psychology
- AUPSY 256 - Developmental Psychology
- AUPSY 346 - Community Psychology
- AUPSY 488 - Forensic Psychology

Notes:
1. Courses may only count towards one of the specializations.
2. Courses in the specializations may overlap with the general major requirements, but students must complete a minimum of 60 units in the Law, Crime and Justice major.
3. Some courses in the specializations may require prerequisites. Students should take this into consideration when planning their degree.
4. Students are encouraged to consider taking one of AUART 225 - Photography: History and Theory, or AUDRA 144 - Introduction to the Dramatic Process, or AUDRA 250 - Applied Improvisation to fulfil the fine arts requirement.
5. AUSSC 330 and AUCRI 430 may be included in the streams based on the topic and determined on a case by case basis.

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</table>

Reviewed/Approved by:

REQUIRED: Augustana Faculty Council - May 8, 2023.

OPTIONAL: Augustana Department of Social Sciences - April 21, 2023
            Augustana Curriculum Committee - April 28, 2023.

Calendar Change Request Form
for Course Changes
See the Calendar Guide for tips on how to complete this form.

Faculty (& Department or Academic Unit):	Augustana
Contact Person:	Jonathan Hawkins
Level of change: (choose one only) [?]	☑ Undergraduate
	☐ Graduate
For which term will this change take effect?	Fall 2023

Rationale

Things to consider (maximum 500 words): Why is this being changed; How will it benefit students/department/unit; How is this comparable to similar programs (internal or external); Historical context; Impacts to administration or program structure; Consultation with stakeholders

The following course changes represent minor prerequisite changes arising out of Augustana Departments adjusting to the significant program changes of the last two years, revised titles and course descriptions, and the creation of several new AUCRI courses.

Course Template

Current: ~~Removed language~~	Proposed: New language
AUCRI 160 - Introduction to Crime, ~~Correction, and Community~~	**AUCRI 160 - Introduction to Crime, Justice and Corrections**
Course Career Undergraduate **Units** 3 **Approved Hours** 3-0-0 **Fee index** 6 **Faculty** Augustana Faculty **Department** AU Social Sciences **Typically Offered** either term	**Course Career** Undergraduate **Units** 3 **Approved Hours** 3-0-0 **Fee index** 6 **Faculty** Augustana Faculty **Department** AU Social Sciences **Typically Offered** either term
Description ~~Introduction to crime and correction in Canada. The theory and practice accompanying law enforcement, trial, correctional intervention, and probation and parole are analyzed by drawing from a range of disciplinary traditions such as ethical reflection, psychological theory, social and political thought, and biological understandings of criminality.~~ Note: Credit may be obtained for only one of AUCRI 160 and AUIDS 160 (2020).	**Description** An introduction to crime, justice and corrections in Canada using interdisciplinary approaches and intersectional theory. The course explores crime in Canada from the criminal event through policing, trials, sentencing, corrections, community responses, and re-entry to society. Note: Credit may be obtained for only one of AUCRI 160 and AUIDS 160 (2020).
NEW	**AUCRI 330 - Selected Topics in Law, Crime and Justice** **Course Career** Undergraduate **Units** 3 **Approved Hours** 3-0-0 **Fee index** 6 **Faculty** Augustana Faculty **Department** AU Social Sciences **Typically Offered** either term

	Description Advanced study of a particular dimension of law, crime and justice studies. Topics may vary from year to year, depending on instructor and student interest. Prerequisite: AUCRI 160 or AUIDS 160 (2020).
NEW	**AUCRI 350 - Race, Racism, and Crime** **Course Career** Undergraduate **Units** 3 **Approved Hours** 3-0-0 **Fee index** 6 **Faculty** Augustana Faculty **Department** AU Social Sciences **Typically Offered** either term **Description** A critical examination of how race and criminalization intersect, focusing on Canada and the United States. We will explore how modern racial disparities in these criminal justice systems are connected to inequality and social control through historical and ongoing processes of racialization and criminalization. Prerequisite: AUCRI 160 or AUIDS 160 (2020).
NEW	**AUCRI 430 - Selected Topics in Law, Crime and Justice** **Course Career** Undergraduate **Units** 3 **Approved Hours** 3-0-0 **Fee index** 6 **Faculty** Augustana Faculty **Department** AU Social Sciences **Typically Offered** either term **Description** Advanced study of a particular dimension of law, crime and justice studies. Topics may vary from year to year, depending on instructor and student interest. Prerequisite: AUCRI 160 or AUIDS 160 (2020).
NEW	**AUCRI 450 - Sociology of Prisons** **Course Career** Undergraduate **Units** 3 **Approved Hours** 3-0-0 **Fee index** 6 **Faculty** Augustana Faculty **Department** AU Social Sciences **Typically Offered** either term **Description** An introduction to the history, politics, and consequences of incarceration in North America and abroad. The course

	will examine why and how people were punished in the past, the reasons and methods for punishment in modern society, and how incarcerated people and those released back into society experience punishment. Prerequisite: AUCRI 160 or AUIDS 160 (2020).
AUENG 207 - Aboriginal/Indigenous Literature **Course Career** Undergraduate **Units** 3 **Approved Hours** 3-0-0 **Fee index** 6 **Faculty** Augustana Faculty **Department** AU Fine Arts **Typically Offered** either term **Description** Offers a critical study of literature by First Peoples, including narratives from the oral tradition, fiction, poetry, drama, essays, and personal narratives. Themes will include traditional and contemporary perspectives on gender, cultural and political identity, and spirituality. Multiple critical approaches (aesthetic, linguistic, political, historical, and cultural) will be employed in examining this literature, including selections from Native critical texts. Content, period, and national focus will vary. Prerequisites: ~~Two of AUENG 102, 103, and 104~~. Note: Not to be taken by students with credit in AUENG 307.	**AUENG 207 - Aboriginal/Indigenous Literature** **Course Career** Undergraduate **Units** 3 **Approved Hours** 3-0-0 **Fee index** 6 **Faculty** Augustana Faculty **Department** AU Fine Arts **Typically Offered** either term Description Offers a critical study of literature by First Peoples, including narratives from the oral tradition, fiction, poetry, drama, essays, and personal narratives. Themes will include traditional and contemporary perspectives on gender, cultural and political identity, and spirituality. Multiple critical approaches (aesthetic, linguistic, political, historical, and cultural) will be employed in examining this literature, including selections from Native critical texts. Content, period, and national focus will vary. Prerequisites: 3 units in English at the 100-level. Note: Not to be taken by students with credit in AUENG 307.
~~**AUIDS 330 - Selected Topics in Law, Crime and Justice**~~ ~~**Course Career** Undergraduate~~ ~~**Units** 3~~ ~~**Approved Hours** 3-0-0~~ ~~**Fee index** 6~~ ~~**Faculty** Augustana Faculty~~ ~~**Department** AU Social Sciences~~ ~~**Typically Offered** either term~~ ~~**Description**~~ ~~Advanced study of a particular dimension of law, crime and justice studies. Topics may vary from year to year, depending on instructor and student interest. Prerequisites: AUCRI 160 or AUIDS 160 (2020).~~	**DELETE**

AUMAT 240 - Introduction to Computational Methods

Course Career Undergraduate
Units 3
Approved Hours 3-0-1.5
Fee index 6
Faculty Augustana Faculty
Department AU Science
Typically Offered either term

Description
Computational methods and software packages and libraries in the mathematical sciences with applications to differentiation and integrations, data fitting, nonlinear systems and differential equations. Prerequisites: AUCSC 111 or AUCSC 113 (2023), and AUMAT 110 or 116; or consent of the instructor. Corequisite: AUMAT 120. Note: Credit may be obtained for only one of AUMAT 240 ~~and~~ AUSCI 250 (2023).

AUMAT 240 - Introduction to Computational Methods

Course Career Undergraduate
Units 3
Approved Hours 3-0-1.5
Fee index 6
Faculty Augustana Faculty
Department AU Science
Typically Offered either term

Description
Computational methods and software packages and libraries in the mathematical sciences with applications to differentiation and integrations, data fitting, nonlinear systems and differential equations. Prerequisites: AUCSC 111 or AUCSC 113 (2023), and AUMAT 110 or 116; or consent of the instructor. Corequisite: AUMAT 120. Note: Credit may be obtained for only one of AUMAT 240, AUSCI 250 (2023), <u>AUMAT 340 (2020), AUCSC 340 (2020), or AUPHY 340 (2020).</u>

AUPOL 329 - Popular Culture, Law and Politics

Course Career Undergraduate
Units 3
Approved Hours 3-0-0
Fee index 6
Faculty Augustana Faculty
Department AU Social Sciences
Typically Offered either term

Description
~~Drawing on existing work in the areas of political culture, cultural studies and popular culture, this course explores the relationship and tension between politics and culture in western states, with a focus on Canada. Prerequisites: AUPOL 103 or 104 (2018).~~

AUPOL 329 - Popular Culture, Law and Politics

Course Career Undergraduate
Units 3
Approved Hours 3-0-0
Fee index 6
Faculty Augustana Faculty
Department AU Social Sciences
Typically Offered either term

Description
<u>An exploration of the relationship between popular culture and law and politics through an examination of scholarly work on political culture and cultural studies and case studies.</u>

AUPOL 355 - Gender, Law, and Politics

Course Career Undergraduate
Units 3
Approved Hours 3-0-0
Fee index 6
Faculty Augustana Faculty
Department AU Social Sciences
Typically Offered either term

Description
~~Exploration of the social and political construction of gender and the impact of gender on politics through an examination of gender with regards to one or more of the following areas: representation, social policy, feminist~~

AUPOL 355 - Gender, Law, and Politics

Course Career Undergraduate
Units 3
Approved Hours 3-0-0
Fee index 6
Faculty Augustana Faculty
Department AU Social Sciences
Typically Offered either term

Description
<u>An exploration of the role of gender in law and politics, including an overview of key concepts, theories, and issues.</u>

<mark>~~political thought, international relations, development, and/or globalization. Prerequisite: One of AUPOL 103, 104 (2018), AUIDS 230.~~</mark>	
AUPSY 483 - Psychological Disorders **Course Career** Undergraduate **Units** 3 **Approved Hours** 3-0-0 **Fee index** 6 **Faculty** Augustana Faculty **Department** AU Social Sciences **Typically Offered** either term **Description** Advanced-level course that focuses on the research related to the etiology, classification, assessment, and treatment of a variety of psychological disorders in children and adults (e.g., anxiety, addictions, depression, schizophrenia, and personality disorders). A student becomes acquainted with the Diagnostic Statistical Manual of Mental Disorders (DSM). Prerequisite: AUPSY 275. AUPSY 486 is highly recommended.	**AUPSY 483 - Psychological Disorders** **Course Career** Undergraduate **Units** 3 **Approved Hours** 3-0-0 **Fee index** 6 **Faculty** Augustana Faculty **Department** AU Social Sciences **Typically Offered** either term **Description** Advanced-level course that focuses on the research related to the etiology, classification, assessment, and treatment of a variety of psychological disorders in children and adults (e.g., anxiety, addictions, depression, schizophrenia, and personality disorders). A student becomes acquainted with the Diagnostic Statistical Manual of Mental Disorders (DSM). Prerequisite: AUPSY <mark>263 or</mark> 275. AUPSY 486 is highly recommended.

Reviewed/Approved by:

REQUIRED: Augustana Faculty Council - April 14, May 8, 2023.
OPTIONAL: Augustana Curriculum Committee - April 6, 28, 2023..

Calendar Change Request Form
for Course Changes

See the Calendar Guide for tips on how to complete this form.

Faculty (& Department or Academic Unit):	School of Public Health
Contact Person:	Helen Starodub
Level of change: (choose one only) [?]	☐ Undergraduate
	☑ Graduate
For which term will this change take effect?	Upon approval

Rationale

Things to consider (maximum 500 words): Why is this being changed; How will it benefit students/department/unit; How is this comparable to similar programs (internal or external); Historical context; Impacts to administration or program structure; Consultation with stakeholders

MACE 560 is a 3 credit course but has always been offered over both fall and winter terms, as MACE 560 A and A. We would like to change it to a single term course in order to give our students an opportunity to finish their degrees quicker and with more flexibility.

Course Template

Current: Removed language	Proposed: New language
Subject & Number: MACE 560 A/B	**Subject & Number: MACE 560**
Title: Community Engagement Practicum	**Title: Community Engagement Practicum**
Course Career: Graduate **Units: 3** **Approved Hours: 36** **Fee index: 6** **Faculty: School of Public Health** **Department:** **Typically Offered: Fall/Winter terms**	**Course Career: Graduate** **Units: 3** **Approved Hours: 36** **Fee index: 6** **Faculty: School of Public Health** **Department** **Typically Offered:Fall term**
Description: ★ 3 (fi 6) (two term, 0-3s-0) Students will gain practical, hands-on experience by contributing to a community-based project that draws on multiple facets of community engagement scholarship. The community experience will be supported by a seminar that explores critical, ethical, and reflective approaches to the everyday practice of community engagement. Restricted to MACE students. Prerequisite: consent of the department. Students may not receive credit for both: CSL 550 and MACE 560.	**Description** ★ 3 (fi 6) (one term, 0-3s-0) Students will gain practical, hands-on experience by contributing to a community-based project that draws on multiple facets of community engagement scholarship. The community experience will be supported by a seminar that explores critical, ethical, and reflective approaches to the everyday practice of community engagement. Restricted to MACE students. Prerequisite: consent of the department.

Reviewed/Approved by:

REQUIRED:
GPST - June 5, 2023
SPH Faculty Council - expected June 20, 2023

OPTIONAL:

Calendar Change Request Form

for Course Changes
See the Calendar Guide for tips on how to complete this form.

Faculty (& Department or Academic Unit):	Faculté Saint-Jean
Contact Person:	H. Safouhi (Vice Dean)
Level of change: (choose one only) [?]	☑ Undergraduate
	☐ Graduate
For which term will this change take effect?	Fall 2023

Rationale
Things to consider (maximum 500 words): Why is this being changed; How will it benefit students/department/unit; How is this comparable to similar programs (internal or external); Historical context; Impacts to administration or program structure; Consultation with stakeholders

A variety of course changes involving course deletions, updated descriptions and prerequisites.

_____

Suppression de cours : tous ces cours sont devenus obsolètes. Ils n'ont plus été enseignés depuis de nombreuses années; on n'a plus l'expertise nécessaire pour les enseigner; ils ont été remplacés par d'autres cours; leurs équivalents ont été supprimés au Campus Nord.

Modification aux préalables de ADRAM 484 / FRANC 484 : ces 2 cours co-siglés n'ont pas les mêmes préalables; un des préalables (FRANC 235) n'existe plus; volonté d'aligner le niveau de préalables sur des cours similaires (ADRAM 486/LITT 486)

Course Template

CURRENT	PROPOSED
Current: ~~Removed language~~	Proposed: New language

ADRAM 484-Création Course Career Undergraduate Units 3 Approved Hours 3-0-0 Fee index 6 Faculty Faculté Saint-Jean Department Saint-Jean Typically Offered L'un ou l'autre semestre Description Théorie et pratique du processus créatif dans l'écriture; introduction aux procédés discursifs de la poésie, du roman et de la pièce de théâtre. Préalable(s): ~~FRANC 235 et *3 en littérature de niveau 300.~~ Note: Ce cours n'est pas accessible aux étudiants ayant ou postulant des crédits pour ADRAM 484.	**ADRAM 484-Création** Course Career Undergraduate Units 3 Approved Hours 3-0-0 Fee index 6 Faculty Faculté Saint-Jean Department Saint-Jean Typically Offered L'un ou l'autre semestre Description Théorie et pratique du processus créatif dans l'écriture; introduction aux procédés discursifs de la poésie, du roman et de la pièce de théâtre. Préalable(s): *3 de littérature niveau 200 ou *3 ADRAM niveau 200. Note: Ce cours n'est pas accessible aux étudiants ayant ou postulant des crédits pour ADRAM 484.
~~**ET RE 103-Introduction aux religions de l'Asie**~~ ~~Course Career Undergraduat~~ ~~Units 3~~ ~~Approved Hours 3-0-0~~ ~~Fee index 6~~ ~~Faculty Faculté Saint-Jean~~ ~~Department Saint-Jean~~ ~~Typically Offered l'un ou l'autre semestre~~ ~~Description~~ ~~Parcours historique des religions hindouiste, bouddhiste, confucianiste et shintoïste~~	**Delete**
~~**FRANC 101A -Communication orale et écrite**~~ ~~Course Career Undergraduat~~ ~~Units 3~~ ~~Approved Hours 3-0-3~~ ~~Fee index 12~~ ~~Faculty Faculté Saint-Jean~~ ~~Department Saint-Jean~~ ~~Typically Offered aux deux semestres~~ ~~Description~~ ~~Étude des éléments et des structures de base du français parlé et écrit; identification et mise en pratique de notions élémentaires et de certains schémas de communication. Note: Ce cours se destine aux étudiants qui ne disposent pas de la base nécessaire pour satisfaire aux exigences de FRANC 110 et 111 (French 30 ou l'équivalent) et n'est pas accessible aux étudiants ayant ou postulant des crédits pour FREN 100.~~	**Delete**

FRANC 110A Le français oral (Niveau intermédiaire, I) Course Career Undergraduat Units 3 Approved Hours 0-5L-0 Fee index 6 Faculty Faculté Saint-Jean Department Saint-Jean Typically Offered l'un ou l'autre semestre Description Étude du français parlé: vocabulaire et structures. Travaux pratiques d'écoute, de lecture et d'expression en séminaires et au laboratoire. Prérequis: French 30, ou équivalent. Affectation par test de classement. Corequis: FRANC 161. Note: Ce cours n'est pas accessible aux étudiants ayant ou postulant des crédits pour FREN 150 ou 152 à la Faculté des Arts.	**Delete**
FRANC 110B - Le français écrit (Niveau intermédiaire, I) Course Career Undergraduat Units 3 Approved Hours 0-5L-0 Fee index 6 Faculty Faculté Saint-Jean Department Saint-Jean Typically Offered l'un ou l'autre semestre Description Étude du français écrit. Compréhension de textes. Acquisition des structures de base. Exercices de rédaction dirigée. Initiation à l'autocorrection. Prérequis: French 30, ou équivalent. Corequis: FRANC 160. Affectation par test de classement. Note: Ce cours n'est pas accessible aux étudiants ayant ou postulant des crédits pour FREN 150 ou 152 à la Faculté des Arts.	**Delete**
FRANC 241A - Communication orale et écrite Course Career Undergraduate Units 3 Approved Hours 3-0-3 Fee index 12 Faculty Faculté Saint-Jean Department Saint-Jean Typically Offered aux deux semestres Description Perfectionnement du français écrit et, surtout, oral. Ce cours se destine à l'étudiant ayant réussi FRANC 110 et 111 ou FREN 150 ou 211/212.	**Delete**

FRANC 484-Création Course Career Undergraduate Units 3 Approved Hours 3-0-0 Fee index 6 Faculty Faculté Saint-Jean Department Saint-Jean Typically Offered L'un ou l'autre semestre Description Théorie et pratique du processus créatif dans l'écriture; introduction aux procédés discursifs de la poésie, du roman et de la pièce de théâtre. Préalable(s): <mark>FRANC 228, 235 et *3 en littérature de niveau 300.</mark> Note: Ce cours n'est pas accessible aux étudiants ayant ou postulant des crédits pour ADRAM 484.	**FRANC 484-Création** Course Career Undergraduate Units 3 Approved Hours 3-0-0 Fee index 6 Faculty Faculté Saint-Jean Department Saint-Jean Typically Offered L'un ou l'autre semestre Description Théorie et pratique du processus créatif dans l'écriture; introduction aux procédés discursifs de la poésie, du roman et de la pièce de théâtre. Préalable(s): <mark>*3 de littérature niveau 200 ou *3 ADRAM niveau 200.</mark> Note: Ce cours n'est pas accessible aux étudiants ayant ou postulant des crédits pour ADRAM 484.
<mark>HISTE 470- Thèmes en histoire sociale canadienne</mark> <mark>Course Career Undergraduate</mark> <mark>Units 3</mark> <mark>Approved Hours 0-3s-0</mark> <mark>Fee index 6</mark> <mark>Faculty Faculté Saint-Jean</mark> <mark>Department Saint-Jean</mark> <mark>Typically Offered L'un ou l'autre semestre</mark> <mark>Description</mark> <mark>Préalable(s): *3 en histoire du Canada ou l'approbation du Vice-doyen aux affaires académiques.</mark>	<mark>**Delete**</mark>
<mark>LINGQ 300 - Lexicologie et terminologie</mark> <mark>Course Career Undergraduate</mark> <mark>Units 3</mark> <mark>Approved Hours 3-0-0</mark> <mark>Fee index 6</mark> <mark>Faculty Faculté Saint-Jean</mark> <mark>Department Saint-Jean</mark> <mark>Typically Offered l'un ou l'autre semestre</mark> <mark>Description</mark> <mark>Étude des approches et des techniques en lexicologie et en terminologie. Analyse de ressources documentaires et mises en application.</mark>	<mark>**Delete**</mark>

~~LITT 472 - Le roman francophone du Canada depuis 1960~~ ~~Course Career Undergraduate~~ ~~Units 3~~ ~~Approved Hours VARIABLE~~ ~~Fee index 6~~ ~~Faculty Faculté Saint-Jean~~ ~~Department Saint-Jean~~ ~~Typically Offered l'un ou l'autre semestre~~ ~~Description~~ ~~Le roman francophone de la Révolution tranquille jusqu'aujourd'hui, vu à travers un choix d'oeuvres. Préalable(s): *3 LITT de niveau 300, préférablement LITT 324. Note: Ce cours n'est pas accessible aux étudiants ayant ou postulant des crédits pour CA FR 470 ou FRANC 472.~~	~~Delete~~
~~SOCIE 328 - Administration de la justice pénale au Canada~~ ~~Course Career Undergraduate~~ ~~Units 3~~ ~~Approved Hours 3-0-0~~ ~~Fee index 6~~ ~~Faculty Faculté Saint-Jean~~ ~~Department Saint-Jean~~ ~~Typically Offered l'un ou l'autre semestre~~ ~~Description~~ ~~Caractéristiques fondamentales de l'appareil de justice pénale canadien et liens avec diverses agences sociales (police, tribunaux, prisons, médias) au sein de cet appareil. Analyse des problèmes auxquels peuvent faire face les personnes confrontées au système pénal. Examen des politiques publiques liées au crime et leur relation avec l'appareil pénal. Préalable : SOCIE 226. Note: ce cours n'est pas accessible aux étudiants ayant ou postulant des crédits pour SOCIE 327.~~	~~Delete~~

Reviewed/Approved by:

REQUIRED: Faculty Council (or delegate) and approval date. FSJ Executive Committee - April 6, 2023 FSJ Faculté Council - May 18, 2023
OPTIONAL: Other internal faculty approving bodies, consultation groups, or departments, and approval dates.

Calendar Change Request Form
for Course Changes
See the Calendar Guide for tips on how to complete this form.

Faculty (& Department or Academic Unit):	Faculté Saint-Jean
Contact Person:	Hassan Safouhi (Vice Dean)
Level of change: (choose one only) [?]	☑ Undergraduate
	☐ Graduate
For which term will this change take effect?	Fall 2024

Rationale
Things to consider (maximum 500 words): Why is this being changed; How will it benefit students/department/unit; How is this comparable to similar programs (internal or external); Historical context; Impacts to administration or program structure; Consultation with stakeholders

In the course catalog and on Beartracks, a seminar is still listed for BIOLE 107 and BIOLE 108 courses when in fact these seminars have not been taught at CSJ for many years. The proposed correction is intended to bring the description of these courses in line with practice.
_____
Dans le catalogue de cours et sur Beartracks, un séminaire est toujours prévu pour les cours de BIOLE 107 et BIOLE 108 alors qu'en fait ces séminaires ne sont plus enseignés au CSJ depuis de nombreuses années. La correction proposée a pour objectif d'aligner la description de ces cours sur la pratique.
A noter : Les équivalents de ces 2 cours au Campus Nord ne comprennent pas de séminaire.

Course Template

CURRENT Current: ~~Removed language~~	PRO0POSED Proposed: New language
BIOLE 107 Introduction à la biologie cellulaire Course Career Undergraduate Units 3 Approved Hours 3-~~1S~~-3 Fee index 6 Faculty Faculté Saint-Jean Department Saint-Jean Typically Offered l'un ou l'autre semestre **Description**	BIOLE 107 Introduction à la biologie cellulaire Course Career Undergraduate Units 3 Approved Hours 3-0-3 Fee index 6 Faculty Faculté Saint-Jean Department Saint-Jean Typically Offered l'un ou l'autre semestre **Description**

Introduction à la structure et au fonctionnement de la cellule. Les principaux sujets étudiés comprennent les cellules procaryotes et eucaryotes, la bioénergétique, comment les cellules se reproduisent et comment l'information génétique est emmagasinée et utilisée à travers les processus de réplication de l'ADN, de transcription et de traduction. Préalable(s): Biologie 30 et Chimie 30. Note: BIOLE 107 n'est pas un préalable pour BIOLE 108.

Introduction à la structure et au fonctionnement de la cellule. Les principaux sujets étudiés comprennent les cellules procaryotes et eucaryotes, la bioénergétique, comment les cellules se reproduisent et comment l'information génétique est emmagasinée et utilisée à travers les processus de réplication de l'ADN, de transcription et de traduction. Préalable(s): Biologie 30 et Chimie 30. Note: BIOLE 107 n'est pas un préalable pour BIOLE 108.

BIOLE 108
Introduction à la diversité biologique
Course Career Undergraduate
Units 3
Approved Hours 3-~~1S~~-3
Fee index 6
Faculty Faculté Saint-Jean
Department Saint-Jean
Typically Offered l'un ou l'autre semestre

Description

Examine les grandes lignées de la vie sur la Terre. Un survol des principes de l'évolution et de la classification, l'histoire de la vie et les adaptations clefs des procaryotes, protistes, eumycètes, végétaux et animaux. Les laboratoires examinent la diversité de formes et de fonctions biologiques, et introduisent l'étudiant à la collecte de données et à la rédaction scientifique. Préalable: Biologie 30. Note: BIOLE 107 n'est pas un préalable pour BIOLE 108.

BIOLE 108
Introduction à la diversité biologique
Course Career Undergraduate
Units 3
Approved Hours 3-0-3
Fee index 6
Faculty Faculté Saint-Jean
Department Saint-Jean
Typically Offered l'un ou l'autre semestre

Description

Examine les grandes lignées de la vie sur la Terre. Un survol des principes de l'évolution et de la classification, l'histoire de la vie et les adaptations clefs des procaryotes, protistes, eumycètes, végétaux et animaux. Les laboratoires examinent la diversité de formes et de fonctions biologiques, et introduisent l'étudiant à la collecte de données et à la rédaction scientifique. Préalable: Biologie 30. Note: BIOLE 107 n'est pas un préalable pour BIOLE 108.

Reviewed/Approved by:

REQUIRED: Faculty Council (or delegate) and approval date.
FSJ Executive Committee - April 6, 2023
FSJ Faculté Council - May 18, 2023

OPTIONAL: Other internal faculty approving bodies, consultation groups, or departments, and approval dates.

Calendar Change Request Form
for Course Changes
See the Calendar Guide for tips on how to complete this form.

Faculty (& Department or Academic Unit):	Faculté Saint-Jean
Contact Person:	Hassan Safouhi (Vice Dean)
Level of change: (choose one only) [?]	☑ Undergraduate
	☐ Graduate
For which term will this change take effect?	Automne / Fall 2023

Rationale
Things to consider (maximum 500 words): Why is this being changed; How will it benefit students/department/unit; How is this comparable to similar programs (internal or external); Historical context; Impacts to administration or program structure; Consultation with stakeholders

The proposed change is to update the note in the course description for CHIM 261 and 263 to reflect changes made to CHEM 261 and 263 of the Faculty of Science (CHEM 261 changed to CHEM 264 and 266; CHEM 263 changed to CHEM 265 and 267)

_____

Changements proposés pour aligner les restrictions d'accès à ces 2 cours aux changements faits aux cours CHEM équivalents au Campus Nord où les labos et cours de chimie ont été séparés (CHEM 261 est devenu CHEM 264+CHEM 266 et CHEM 263 est devenu CHEM 265 et CHEM 267. Les CHIM 161 et 164 ne sont plus offerts au Campus Nord mais le sont toujours au CSJ.

Course Template

CURRENT Current: ~~Removed language~~	PROPOSED Proposed: New language
CHIM 261 - Chimie organique I Course Career Undergraduate Units 3 Approved Hours 3-0-3 Fee index 6 Faculty Faculté Saint-Jean Department Saint-Jean Typically Offered premier semestre **Description** Étude des composés du carbone: la nomenclature, la structure tridimensionnelle, la stéréochimie, les effets électroniques, la réactivité et les mécanismes réactionnels (en particulier les additions électrophiles et les substitutions aromatiques). Étude des structures des	**CHIM 261 - Chimie organique I** Course Career Undergraduate Units 3 Approved Hours 3-0-3 Fee index 6 Faculty Faculté Saint-Jean Department Saint-Jean Typically Offered premier semestre **Description** Étude des composés du carbone: la nomenclature, la structure tridimensionnelle, la stéréochimie, les effets électroniques, la réactivité et les mécanismes réactionnels (en particulier les additions électrophiles et les substitutions aromatiques). Étude des

molécules organiques par spectroscopie infrarouge. L'accent sera mis sur les alcanes, les alcènes, les alcynes et certains composés aromatiques. Les exemples comprendront des hydrocarbures d'importance (produits pétroliers, aliments, molécules de sources naturelles, etc.) que l'on retrouve dans la vie quotidienne. Préalable(s): CHIM 101 ou 103. Note(s): (1) Ce cours n'est pas accessible aux étudiants ayant ou postulant des crédits pour CHIM 161 ou 164 ou CHEM 164 ou 261. (2) Les étudiants de la Faculty of Engineering qui suivent ce cours auront *4.5.

structures des molécules organiques par spectroscopie infrarouge. L'accent sera mis sur les alcanes, les alcènes, les alcynes et certains composés aromatiques. Les exemples comprendront des hydrocarbures d'importance (produits pétroliers, aliments, molécules de sources naturelles, etc.) que l'on retrouve dans la vie quotidienne. Préalable(s): CHIM 101 ou 103. Note(s): (1) Ce cours n'est pas accessible aux étudiants ayant ou postulant des crédits pour CHIM 161 ou 164 ou CHEM 164 ou 261 ou 264 ou 266. (2) Les étudiants de la Faculty of Engineering qui suivent ce cours auront *4.5.

CHIM 263 - Chimie organique II
Course Career Undergraduate
Units 3
Approved Hours 3-0-3
Fee index 6
Faculty Faculté Saint-Jean
Department Saint-Jean
Typically Offered second term

Description
Continuation de l'étude des réactions et des propriétés structurales, chimiques et mécanistiques (en particulier les substitutions et additions nucléophiles et les éliminations) des groupes fonctionnels avec l'accent sur les composés halogénés, les alcools, les éthers, les aldéhydes, les cétones, les acides carboxyliques et leurs dérivés, et les amines. Étude de la déduction des structures des molécules organiques par spectroscopie infrarouge et spectroscopie de résonance magnétique nucléaire. Des exemples de ces groupes fonctionnels pourront provenir des pesticides, boissons, médicaments, produits naturels, etc. Préalable(s): CHIM 161 ou 164 ou 261 ou SCI 100. Note: Ce cours n'est pas accessible aux étudiants ayant ou postulant des crédits pour CHIM 163 ou CHEM 263.

CHIM 263 - Chimie organique II
Course Career Undergraduate
Units 3
Approved Hours 3-0-3
Fee index 6
Faculty Faculté Saint-Jean
Department Saint-Jean
Typically Offered second term

Description
Continuation de l'étude des réactions et des propriétés structurales, chimiques et mécanistiques (en particulier les substitutions et additions nucléophiles et les éliminations) des groupes fonctionnels avec l'accent sur les composés halogénés, les alcools, les éthers, les aldéhydes, les cétones, les acides carboxyliques et leurs dérivés, et les amines. Étude de la déduction des structures des molécules organiques par spectroscopie infrarouge et spectroscopie de résonance magnétique nucléaire. Des exemples de ces groupes fonctionnels pourront provenir des pesticides, boissons, médicaments, produits naturels, etc. Préalable(s): CHIM 161 ou 164 ou 261 ou SCI 100. Note: Ce cours n'est pas accessible aux étudiants ayant ou postulant des crédits pour CHIM 163 ou CHEM 263 ou 265 ou 267.

Reviewed/Approved by:

REQUIRED: Faculty Council (or delegate) and approval date.
FSJ Executive Committee - April 6, 2023
FSJ Faculté Council - May 18, 2023

OPTIONAL: Other internal faculty approving bodies, consultation groups, or departments, and approval dates.

Calendar Change Request Form
for Course Changes
See the [Calendar Guide](link) for tips on how to complete this form.

Faculty (& Department or Academic Unit):	Faculté Saint-Jean
Contact Person:	Hassan Safouhi (Vice-Dean)
Level of change: (choose one only) [?]	☑ Undergraduate
	☐ Graduate
For which term will this change take effect?	Fall 2023

Rationale
Things to consider (maximum 500 words): Why is this being changed; How will it benefit students/department/unit; How is this comparable to similar programs (internal or external); Historical context; Impacts to administration or program structure; Consultation with stakeholders

This change is proposed to adjust the IMINE 200 prerequisites so that Beartracks recognizes the required courses under both their French and English designations, in order to facilitate automatic student enrollment in IMINE 200.
_____
Ajustement des préalables de IMINE 200 afin que le Beartracks reconnaisse les cours requis sous leurs sigles en français et en anglais, cela afin de faciliter l'inscription automatique des étudiants dans IMINE 200.

Course Template

CURRENT Current: ~~Removed language~~	PROPOSED Proposed: New language
IMINE 200 - Infection et immunité Course Career Undergraduate Units 3 Approved Hours 3-0-0 Fee index 6 Faculty Faculté Saint-Jean Department Saint-Jean Typically Offered l'un ou l'autre semestre **Description** Introduction aux principes et aux mécanismes d'immunité dans les eucaryotes. Survol des principaux groupes d'agents infectieux (virus, bactéries, parasites); étude de micro-organismes spécifiques par rapport à la réponse de l'hôte aux agents pathogènes, et stratégies d'évasion à ces agents. Préalable(s) ou concomitant(s): BIOCM 200 et MICRB 265. Note: Ce cours n'est pas accessible aux étudiants ayant ou postulant des crédits pour BIOCH 450.	**IMINE 200 - Infection et immunité** Course Career Undergraduate Units 3 Approved Hours 3-0-0 Fee index 6 Faculty Faculté Saint-Jean Department Saint-Jean Typically Offered l'un ou l'autre semestre **Description** Introduction aux principes et aux mécanismes d'immunité dans les eucaryotes. Survol des principaux groupes d'agents infectieux (virus, bactéries, parasites); étude de micro-organismes spécifiques par rapport à la réponse de l'hôte aux agents pathogènes, et stratégies d'évasion à ces agents. Préalable(s) ou concomitant(s): BIOCM/BIOCH 200 et MICRE/MICRB 265. Note: Ce cours n'est pas accessible aux étudiants ayant ou postulant des crédits pour BIOCH 450.

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| | |

Reviewed/Approved by:

REQUIRED: Faculty Council (or delegate) and approval date.

FSJ Executive Committee - May 4,, 2023
FSJ Faculté Council - May 18, 2023

OPTIONAL: Other internal faculty approving bodies, consultation groups, or departments, and approval dates.

UNIVERSITY OF ALBERTA

Calendar Change Request Form

Faculty (& Department or Academic Unit):	Faculté Saint-Jean
Contact Person:	Hassan Safouhi (Vice Dean)
Level of change: (choose one only) [?]	☑ Undergraduate
	☐ Graduate
For which term will this change take effect?	Fall 2024

Rationale

Things to consider (maximum 500 words): Why is this being changed; How will it benefit students/department/unit; How is this comparable to similar programs (internal or external); Historical context; Impacts to administration or program structure; Consultation with stakeholders

The following changes are proposed to the Zoole 352 course to align it with the Zool 352 course offered by the Faculty of Science.

_____

La description du cours au Campus Nord a changé et les changements et les changements proposés reflètent ce qui a été fait au Campus Nord.

Course Template

CURRENT Current: ~~Removed language~~	PROPOSED Proposed: New language
ZOOLE 352 - Principes du parasitisme Course Career Undergraduate Units 3 Approved Hours 3-3S-0 Fee index 6 Faculty Faculté Saint-Jean Department Saint-Jean Typically Offered l'un ou l'autre semestre Description Une introduction des parasites protozoaires, helminthes et arthropodes affectant les animaux ; principes d'adaptations hôtes-parasites, ~~de défenses des hôtes, de pathologie, d'épidémiologie et~~	**ZOOLE 352 - Principes du parasitisme** Course Career Undergraduate Units 3 Approved Hours 3-1.5S-0 Fee index 6 Faculty Faculté Saint-Jean Department Saint-Jean Typically Offered l'un ou l'autre semestre Description Une introduction des parasites protozoaires, helminthes et arthropodes affectant les animaux ; principes d'adaptations hôtes-parasites, d'épidémiologie, d'écologie, de défenses des

~~d'écologie et contrôle des infections parasitaires. Des tutoriels de laboratoires en ligne mettront l'accent sur la morphologie, les cycles de vie, le comportement, la systématique et l'histoire de la vie des parasites.~~ Préalable(s) : un cours de niveau 200 en biologie (ZOOL 250 ~~et~~ IMIN ou IMINE 200 recommandés). Note: Ce cours n'est pas accessible aux étudiants ayant ou postulant des crédits pour ZOOL 352.	hôtes et immunologie et contrôle des infections parasitaires. Les séminaires mettront en évidence la diversité des parasites dans les groupes importants.Préalable(s) : un cours de niveau 200 en biologie (ZOOL 250 ou IMIN ou IMINE 200 recommandés). Note: Ce cours n'est pas accessible aux étudiants ayant ou postulant des crédits pour ZOOL 352.

Reviewed/Approved by:

REQUIRED: Faculty Council (or delegate) and approval date. FSJ Executive Committee - April 6, 2023 FSJ Faculté Council - May 18, 2023
OPTIONAL: Other internal faculty approving bodies, consultation groups, or departments, and approval dates.

UNIVERSITY OF ALBERTA

Faculty (& Department or Academic Unit):	Faculty of Science (Department of Computing Science)
Contact Person:	Adam White
Level of change: (choose one only) [?]	● Undergraduate
	●
For which term will this change take effect?	Winter 2024 (January)

Rationale

Things to consider (maximum 500 words): Why is this being changed; How will it benefit students/department/unit; How is this comparable to similar programs (internal or external); Historical context; Impacts to administration or program structure; Consultation with stakeholders

Artificial Intelligence presents the greatest change to how industry and society operate since the industrial revolution. In the coming decades, nearly every aspect of what we do will be shaped by AI. In order to lead with purpose, tomorrow's leaders need to have a deep understanding of this technology and how to use it.

The *AI Everywhere* undergraduate online course is designed for U of A students to gain a fundamental understanding of the opportunities and challenges that are driving our AI future - positioning them to be leaders in the opportunities and challenges of AI for industry and society.

AI Everywhere is non-technical undergraduate online course focused on giving students a foundational understanding of AI and where it can be applied.

The offering will continue to position the U of A as a leader in AI research and education.

Course Template

Current: Removed language	Proposed:
Subject & Number	**INT D 161**
Title	**Title** Artificial Intelligence Everywhere
Course Career	**Course Career** Undergraduate
Units	**Units** 3
Approved Hours	**Approved Hours** (3, 0, 0)
Fee index	**Fee index** 6
Faculty	**Faculty** Science
Department	**Department** Computing Science
Typically Offered	**Typically Offered** either term
Description	**Description** Artificial Intelligence (AI) Everywhere is a non-technical undergraduate online course focused on giving students a foundational understanding of AI and where it can be applied. Although AI is a technical topic, this course is

<table>
<tr><td></td><td>intended to demystify the field and has no prerequisites. This course will first cover the history of AI and its multidisciplinary beginnings with connections to psychology, animal learning, neuroscience, and computing science. From there students will be introduced to the basic components of modern AI through several case-studies. The course will explore the role of data collection and human inputs in a range of systems from classical expert systems, to supervised learning, to reinforcement learning systems that generate their own data by interacting with the world. Throughout, we will use simple terms to discuss the general approaches, successes and failures of AI and machine learning systems, as well as interactions with people, including privacy and our ability to understand machines that learn.</td></tr>
</table>

Reviewed/Approved by:

REQUIRED: Associate Chairs Committee approved on May 5, 2023.

OPTIONAL: Other internal faculty approving bodies, consultation groups, or departments, and approval dates.

Department of Computing Science Curriculum Committee
Consulted May 1, 2023.

Department of Computing Science
Approved by Department Council, May 16, 2023

Calendar Change Request Form
for Course Changes

See the Calendar Guide for tips on how to complete this form.

Faculty (& Department or Academic Unit):	Science - Mathematical and Statistical Sciences
Contact Person:	David McNeilly dm15@ualberta.ca
Level of change: (choose one only) [?]	☐ Undergraduate
	☑ Graduate
For which term will this change take effect?	Fall 2024

Rationale

Things to consider (maximum 500 words): Why is this being changed; How will it benefit students/department/unit; How is this comparable to similar programs (internal or external); Historical context; Impacts to administration or program structure; Consultation with stakeholders

This is a request for creating a new graduate course on mathematical modeling of infectious diseases. The COVID-19 pandemic has demonstrated the importance of mathematical modeling for public health, and many institutions have begun to offer graduate level disease modeling courses (e.g., The Fields Institute is offering an online graduate course on disease modeling). MSS has strong expertise on this topic. A disease modeling course has been offered to graduate students by Michael Li since 2011, under the Topics of Applied Mathematics, and attracted graduate students from MSS, Engineering, Medicine, and School of Public Health). The topic course is also one of the Elective Courses for the MSc Program on Modeling, Data, and Predictions (MDP). This request is to create a designated course number and standardized course syllabus for the topic course, to offer more course selections for students and facilitate scheduling of the course.

Course Template

Current: ~~Removed language~~	**Proposed:** New language
NEW COURSE	**Subject & Number:** Math 574 **Title:** Mathematical Modeling of Infectious Diseases **Course Career:** Graduate **Units:** 3.00 **Approved Hours:** 3-0-0 **Fee index:** 6 **Faculty:** Science **Department:** Mathematical & Statistical Sci **Typically Offered:** either term **Description:** Development of mathematical models for the transmission dynamics of infectious diseases, incorporation of important epidemiological factors including disease latency, recovery, relapse and reinfection, isolation and quarantine, vaccination and immunity. Stability and bifurcation analysis of mathematical models. Estimation of model parameters from public health data, and numerical simulations of models. Prediction of the time course of epidemics and long-term patterns of endemic diseases. Prerequisites: MATH 334 or MATH 336, or with instructor's consent.

Reviewed/Approved by:

REQUIRED: Faculty Council (or delegate) and approval date.
Approved Mathematical and Statistical Sciences Departmental Council, February 7, 2023

FINAL ITEM NO. 6

Decision ☒ Discussion ☐ Information ☐

ITEM OBJECTIVE: To approve the creation of a new Bachelor of Science in Mechatronics and Robotics Engineering Cooperative Program.

DATE	June 22, 2023
TO	GFC Programs Committee
RESPONSIBLE PORTFOLIO	Faculty of Engineering

MOTION THAT the GFC Programs Committee recommends that the Board of Governors approve the proposed Bachelor of Science in Mechatronics and Robotics Engineering Cooperative Program for implementation upon final approval.

EXECUTIVE SUMMARY

In collaboration with both industry and academic stakeholders, a multidisciplinary undergraduate engineering cooperative program in Mechatronics and Robotics has been developed to deliver technological innovation and foster talent for local, national and global businesses, and to respond to society's need for engineers with the skills and hands-on experience to approach, understand, design, and debug complex systems. The Mechatronics and Robotics Engineering program integrates mechanical, electrical, and computer engineering in a curriculum that incorporates Indigenous worldviews, histories, and perspectives. This multidisciplinary approach recognizes that the best solutions arise from a rich diversity of perspectives, discussion, and inquiry. The proposed program includes an experiential project-based design course in each year of the program and culminates in a two-term capstone design project. In their final year of study, students can tailor the curriculum to their own interests by choosing a set of technical electives under one of the following five themes: Aerospace; Advanced Manufacturing; Cyber-physical Systems; Intelligent Robotics; and Biomechatronics.

The proposed program will be the first of its kind in the Prairie provinces and the University is well positioned to close this skills gap, contributing to the Government of Alberta's strategic vision for advancing innovation and prioritizing artificial intelligence (AI) and technological diversification. The proposed program also aligns with the strategic priorities of the University, and the Canadian Engineering Accreditation Board. The proposed program was developed in consultation with a diversity of stakeholders, including industry representatives, academics, students, and Indigenous representatives.

Consultation with current learners in Engineering suggests that demand should be robust for this program, so the risk of lower than projected enrollment in the program is believed to be minimal. From our demand analysis, upwards of 70% of all engineering students are choosing one of Mechanical Engineering, Electrical Engineering, or Computer Engineering as their first choice of program, with the existing programs being oversubscribed at the current time.

GOVERNANCE OUTLINE

ITEM NO. 6

To maintain relevance and avoid program stagnation, we have built multiple risk mitigation mechanisms into the implementation plan for the proposed program, including forming an Industry Program Advisory Committee to review and provide on-going feedback to ensure graduates of the program are able to meet the needs of industry as part of the Faculty's robust continuous improvement process, which also includes student feedback.

Planned implementation includes admitting 100 additional students to the Faculty of Engineering's common first-year program in Fall 2024, and then in Fall 2025, 100 students will be admitted to the proposed Mechatronics and Robotics Engineering co-op program in their 2nd year of study. Communications, marketing, and student recruitment activities will commence after the program receives Ministry approval.

Supporting Materials:

1. **Template A (System Co-ordination Review)**
2. **Template B (Campus Alberta Council Quality Review)**
3. **Appendices A—E**

SCHEDULE A:
Engagement and Routing

Consultation and Stakeholder Participation / Approval Route (parties who have seen the proposal and in what capacity) <*Governance Resources Section Student Participation Protocol*>

*Those who are actively **participating***:

- Dr. Pierre Mertiny, Associate Dean, Undergraduate programs, Faculty of Engineering
- Dr. David Nobes, Vice-Chair, Mechanical Engineering Department
- Dr. Ashwin Iyer, Vice-Chair, Electrical and Computer Engineering Department
- Bryan Rapati, Acting Faculty Operations Manager, Faculty of Engineering
- Faculty members in Mechanical, and Electrical & Computer Engineering Departments with teaching and subject matter expertise in mechatronics and robotics engineering, including Alan Lynch, Steven Knudsen, Mahdi Tavakoli, Qing Zhao, Ehsan Hashemi, Mike Lipsett, Hossein Rouhani, Ahmed Qureshi, and also Martin Jagersand (Faculty of Science, Computing Science Department)

*Those who have been **consulted***:

- Carrie Smith, Vice-Provost (Equity, Diversity & Inclusion)
- Florence Glanfield, Vice-Provost (Indigenous Programming & Research)
- Andrea Menard, Lead Educational Developer, Centre for Teaching and Learning
- Edith Finczak, Director, Academic Budget and Planning, Office of the Provost
- Sherri Kuss, Director, Engineering Co-op Office
- Oksana Feculak, Student Recruitment Partner, College of Natural & Applied Sciences
- Annie Aguilar, Communications & Marketing, College of Natural & Applied Sciences

GOVERNANCE OUTLINE

- Alison Henry, Subject Librarian, University of Alberta Library
- Members of the Office of the Provost
- Registrar's Advisory Committee on Fees (RACF)
- Canadian Engineering Accreditation Board (CEAB)
- Undergraduate students in the Faculty of Engineering who participate in clubs and groups related to mechatronics and robotics
- Industry stakeholders (see list in Appendix C)

*Those who have been **informed**:*

- All academic faculty members in the Faculty of Engineering
- Undergraduate students in the Faculty of Engineering
- Broader University of Alberta community (outside Engineering) informed through Program Support Team proposal review

Approval Route:

Reviewedd by Program Support Team (PST), March 2, 2023
Approved by Engineering Coordinating Committee (ECC), Faculty of Engineering, April 25, 2023
Approved by Executive Faculty Council (EFC) , Faculty of Engineering, May 18, 2023

- GFC Programs Committee, June 22, 2023
- GFC Academic Planning Committee, September 6, 2023

- Board Learning Research and Student Experience Committee, September 29, 2023

Supplementary Notes / Context:

Proposal Template: New Bachelor's Degree Programs and Specializations
(Part A: System Co-ordination Review)

Complete this template for proposals for new bachelor's degree programs or specializations. Institutions should:

- ensure that submission content is concise. Any additional information may be appended;
- indicate "not applicable" when questions are not relevant to a particular proposal; and
- ensure that applicable supporting documents are attached to the proposal.
- when submitting the final proposal to CAQC (i.e., Part A and Part B), group all appendices together sequentially at the end of the proposal or include as a separate document.

SECTION A: PROPOSAL OVERVIEW

Basic Information *(Complete the table below)*

Institution	University of Alberta
Program Name	Bachelor of Science in Mechatronics and Robotics Engineering Cooperative Program
Specialization Name	Not applicable
Credential Awarded	Bachelor of Science in Mechatronics and Robotics Engineering Cooperative Program
Proposed Effective Date	July 1, 2024

Type of Initiative *(Answer the following questions)*
This is a proposal for (select one from the drop-down menu):

New program

SECTION B: OVERVIEW OF PROPOSED PROGRAM OF STUDY

1. Program Description *(Answer the following questions)*

a. Attach (as an appendix to this proposal) a concise program description document.
 	
 • Please refer to Appendix A for a description of the proposed program including:
      o term-by-term proposed program of study including course names, descriptions, credits and prerequisites;
      o co-op program sequence; and

o   program learning outcomes.

b. Where applicable, identify planned collaborations with other post-secondary institutions, departments within the institution or other organizations that this program respectively facilitates or provides for.

●   The Mechatronics and Robotics Engineering Program (the program) will be housed administratively within the Mechanical Engineering Department. The development of the program has been a joint collaboration between both the Mechanical Engineering (MECE) Department and Electrical and Computer Engineering (ECE) Department with equal partnership and influence in developing the program structure and requirements.

●   Each department nominated one individual to be a Co-Lead for program development, and the Co-Leads have been responsible for achieving consensus on any decisions made during the development of the program.

●   Administration of the operation of the Mechatronics and Robotics Engineering Program will be the responsibility of two Co-Directors, one each from the MECE and ECE departments, and appointed by the Chairs of those departments prior to the start of operations.

●   Development of the program curriculum was a collaborative process led by a team of subject matter experts (SMEs) from both the MECE and ECE departments, and from the Computer Science department.

●   Collaboration within the institution includes:
    o   the leveraging of existing MECE and ECE courses and the sharing of equipment, lab, and teaching facilities and resources between multiple engineering departments;
    o   on-going collaboration with the Faculty of Science and Faculty of Arts to deliver courses in the common first year;
    o   collaboration with University of Alberta International and International Student Services so that international students can get the support they need with immigration matters (study permits, visas), health insurance, feeling connected to a community, and with adjusting to Edmonton and to working in Canada so they have the best chance of succeeding in the proposed program; and
    o   on-going collaboration with the Vice-Provost of Indigenous Programming and Research and the Vice-Provost of Equity, Diversity, and Inclusion in order to fulfill the Indigenization and EDI Strategies (both strategies can be found in Appendix B).

●   Proposed future and on-going collaboration with other post-secondary institutions includes:
    o   University of Waterloo: On-going discussions with the Director of Mechatronics are planned in order to seek further program guidance and feedback in terms of overall curriculum development, instructional equipment, and detailed technical elective content.
    o   University of Calgary: Members of the Program Development Team visited the University of Calgary in February 2023 in order to further develop collaborative relationships with the academic and technical support staff involved in their

Mechatronics minor program. Valuable input included a strong recommendation to provide students with open access to lab spaces, to consider mental health in terms of student workload, to focus on providing students with opportunities to integrate knowledge through experiential learning (hands-on experiences improve retaining theoretical knowledge from term to term).

o NAIT: The Program Development Team will be investigating potential collaboration with the Northern Alberta Institute of Technology's (NAIT) continuing education program "Siemens Mechatronics Systems" in terms of both a further integration of Work Integrated Learning practices and a possible source of transfer students.

Reviewer's Comment:

2. Work Integrated Learning *(If applicable, answer the following questions)*

a. Identify the number of placements required in the program (including type of work setting and duration/timing of activities).

● Co-op placements are required for 100% of enrolled students. Please refer to the Projected Student Enrolment table in Section C below.

● Each student in the program will complete two co-op placements as shown in Table 1 below. The first co-op placement (8-month duration) starts after the Winter semester in the 2nd year of study (i.e., upon completion of Study Term 4). The second co-op placement (12-month duration) starts after the completion of Study Term 6 at the end of the 3rd year of study.

Table 1. Timing/Duration of Co-op Terms

Year	Semester	Term	Duration / Activity
Year 1	Fall	Study Term 1	Study 8 months
	Winter	Study Term 2	
	Spring-Summer		[4 months off]
Year 2	Fall	Study Term 3	Study 8 months
	Winter	Study Term 4	
	Spring-Summer	Work Term 1	Co-op Work Term 8 months
Year 3	Fall	Work Term 2	
	Winter	Study Term 5	Study 8 months
	Spring-Summer	Study Term 6	
Year 4	Fall	Work Term 3	Co-op Work Term 12 months
	Winter	Work Term 4	
	Spring-Summer	Work Term 5	
Year 5	Fall	Study Term 7	Study 8 months
	Winter	Study Term 8	

- Co-op work placements for the proposed Mechatronics and Robotics program will likely take place in a variety of settings, including manufacturing and production facilities, research and development labs, and consulting or engineering firms in a variety of industries.

- The work setting will vary depending on the employer, but generally students will be working in a professional engineering environment and will be expected to conduct themselves in a professional manner. They will be supervised by experienced engineers and will have the opportunity to work on projects alongside other professionals in the field, which will provide them with a variety of hands-on experiences, such as solving real-world engineering problems, project management, and teamwork. It will also give them the chance to learn about industry standards and practices and to develop a professional network.

b. Summarize communications with employers (append applicable letters of support, minutes of program advisory committee meetings, etc.) showing that sufficient placements will be available when needed.

- Please refer to the Record of Stakeholder Consultation in Appendix C and the Letters of Support in Appendix D.

- Early engagement with industry stakeholders was an important step in the development of the proposed mechatronics engineering program. The key messages for prospective industry stakeholders and co-op employers included the opportunity to collaborate with one of Canada's top engineering faculties in order to shape the program to meet their immediate and future workforce needs, to develop the innovation ecosystem to their benefit, and to contribute to the economic diversification of Alberta.

- By sharing a Primer about the program and the program vision statements (see Appendix A), we helped prospective employers understand the purpose and value of the program, and how program graduates will be well-positioned to contribute to advancing their organization's goals. This early engagement also provided valuable feedback and insights that shaped the program and ensured that it will deliver highly trained students who are prepared to meet the needs of modern industry.

- To date, the response from industry stakeholders to the proposed mechatronics engineering program at the University of Alberta has been overwhelmingly positive. We have engaged in short, but meaningful consultations with these stakeholders to better understand their needs and discuss how the program can best meet them. We have received letters of support from over a dozen organizations and companies, from local to multinational and from small to large enterprises, expressing demand for the very attributes and skills that Mechatronics and Robotics co-op students and graduates will possess.

c. Comment on whether/how work integrated learning placements in other programs (at the institution or at other institutions within the Alberta Adult Learning System) may be impacted as a result of this program.

- The Co-op program at the University of Alberta exists in all engineering disciplines and comprises approximately 42% of all Engineering students after the common first year.

- The overall placement rate for co-op students in all Engineering programs over the most recent 16 months is 95%, which indicates there is high demand for co-op students. See Table 2 for the overall placement rate by term for the four terms starting Fall 2021 to present.

- The Engineering Co-op program is sufficiently robust to scale to meet the demands of the proposed program. Before the Spring-Summer term of 2026 when the first cohort of students enter their first 8-month co-op term, the Engineering Co-op Office will create the number of net new co-op placements required in order to not negatively impact the availability of placements in related disciplines (Mechanical, Electrical, Computer, etc.). To accomplish this, the Engineering Co-op Office will add additional Program Advisors and Employer Relationship Managers in order to maintain the level of service and support that leads to a placement rate as high as 97%. If it's not possible for a student without a co-op placement to resequence the program, the Faculty will support co-op placements in university research labs.

Table 2. Overall Placement Rates by Co-op Term

Dates	Co-op Term	Overall Placement Rate
Sep - Dec 2021	Fall 2021	96%
Jan - Apr 2022	Winter 2022	96%
May - Aug 2022	Summer 2022	91%
Sep - Dec 2022	Fall 2022	97%

3. Endorsement of and/or Support for Program *(If applicable)*

a. Describe endorsement(s) from relevant professional organizations, regulatory bodies, advisory committees, employers, and/or industry.

- The University of Alberta has received support from professional organizations, regulatory bodies, potential employers, and industry partners in the form of letters of support and other forms of communication expressing positive support for the development and launch of the proposed program.

- The Association of Professional Engineering and Geoscientists of Alberta (APEGA), the Canadian Engineering Accreditation Board (CEAB), the Canadian Society of Mechanical Engineers (CSME), and various industry stakeholders were engaged in consultation to ensure the program is relevant to current engineering practices and meets industry needs.

These endorsements and expressions of support indicate strong support for the Mechatronics and Robotics Engineering program. Please see Appendix C for the record of stakeholder consultation and a detailed description of feedback and endorsements received, and see Appendix D for letters of support received.

Reviewer's Comment:

SECTION C: ENROLMENT PLANNING

1. Projected Student Enrolment *(Complete the table below as applicable).*

The Faculty of Engineering currently admits students into a first-year program with a common curriculum, which serves as an introduction to all of the specialized programs offered by the Faculty (e.g., Mechanical, Electrical, Civil, Chemical, etc.). The proposed Mechatronics and Robotics Engineering program would be one of the specialized programs students could select when they make their program selection in the Winter Term of first year. Students are admitted to the specialized program for their second and subsequent years. All admissions are on a competitive basis. Students are admitted to a specialized program based first of all on academic performance in first year, and secondly on their program preferences.

The expectation is that 100 additional students will be admitted to first-year in Fall 2024, and that 100 students will be admitted to the proposed Mechatronics and Robotics Engineering program in their 2nd year of study starting in Fall 2025. Please see Table 3 for proposed program enrolment during the first five years of program implementation. At steady-state, total headcount would be 500.

Table 3. Proposed Enrolment 2024-2029

Proposed Enrolment	1st Year of Implementation 2024-2025	2nd Year of Implementation 2025-2026	3rd Year of Implementation 2026-2027	4th Year of Implementation 2027-2028	5th Year of Implementation 2028-2029	Annual Ongoing
Total Headcount	100	200	300	400	500	500
• 1st Year of Study	100	100	100	100	100	100
• 2nd Year of Study	0	100	100	100	100	100
• 3rd Year of Study	0	0	100	100	100	100
• 4th Year of Study	0	0	0	100	100	100
• 5th Year of Study	0	0	0	0	100	100
Anticipated No. of Graduates	0	0	0	0	100	100
Reviewer's Comment:						

a. Indicate the percentage of international students in the enrolment projections and provide a brief rationale regarding how the percentage was established.

● The projected student enrolment above includes 20% international students. This percentage was established based on the historical percentage of international students in all Engineering programs over the last five years, as shown in Figure 1.
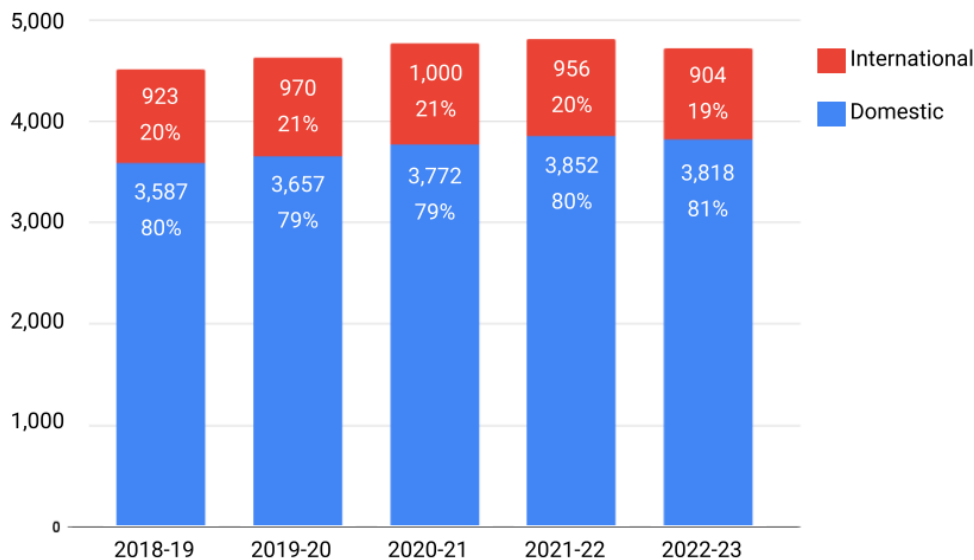
Figure 1. Number and percentage of international and domestic undergraduate students in Engineering

2. Learner and Labour Market Demand *(Answer the following questions)*

a. Provide evidence of labour market demand for graduates, detailing how such demand was forecasted and substantiated regionally and provincially. (Append supporting documentation, as appropriate.)

● As mechatronics engineering is a multidisciplinary combination of electrical, computer, and mechanical engineering disciplines, it follows that employment outlooks and forecasts for those three disciplines can be combined to create a complete picture for employment prospects and labour market demand in mechatronics engineering.

● According to the 2021-2025 Alberta Regional Occupational Demand Outlook, the employment outlook in terms of annual growth rate is forecast as 1.9%, 2.1%, and 1.8% for Electrical Engineer[3], Computer Engineer[4], and Mechanical Engineer[5], respectively. In particular, the demand for Computer Engineers is rated as "High" according to the 2022-2024 Alberta Short-Term Employment Forecast.

● The occupation "Mechatronic Engineer" belongs to the occupational grouping for Mechanical Engineers (NOC 21301)[1]. For the 2022-2024 period, the employment outlook is rated as "Moderate" to "Good" across the country according to the Department of

Employment and Social Development Canada (ESDC) Job Bank. Regionally, in Alberta, for the 2022-2024 period, the employment outlook for Mechatronics Engineers is defined as "Good" according to the ESDC Job Bank[2].

- According to the Canadian Occupational Projection System (COPS), mechanical engineering is a profession that will be in continual demand for the foreseeable future[6]. This wider occupational group, which includes Mechatronics Engineers, is expected to face labour shortage conditions across Canada as the number of job openings and job seekers are projected to be relatively similar over the 2019-2028 period. For that period, job openings in Canada arising from both expansion demand (employment growth) and replacement demand (retirements) are expected to total 11,300, and the number of job seekers is expected to be a similar number. For computer engineering[7], employment over the same time period is projected to grow at a rate substantially higher than the average for all occupations.

- In particular, computer systems design will continue to outperform most industries in terms of production and employment growth, as rapid technological innovation in areas such as artificial intelligence and 3D printing will result in demand for workers in this occupation. In terms of labour supply, it is expected that over the 2019-2028 time period the majority of job seekers will come directly from Canadian post-secondary institutions.

- Please refer to Appendix C for a summary of what we heard from employers regarding their need for graduates from mechatronics programs. Appendix D includes letters of support from many of the employers we consulted.

1 https://www.jobbank.gc.ca/outlookreport/occupation/25070
2 https://www.jobbank.gc.ca/marketreport/outlook-occupation/25070/AB
3 https://alis.alberta.ca/occinfo/occupations-in-alberta/occupation-profiles/electrical-engineer/
4 https://alis.alberta.ca/occinfo/occupations-in-alberta/occupation-profiles/computer-engineer/
5 https://alis.alberta.ca/occinfo/occupations-in-alberta/occupation-profiles/mechanical-engineer/
6 https://occupations.esdc.gc.ca/sppc-cops/occupationsummarydetail.jsp?tid=70
7 https://occupations.esdc.gc.ca/sppc-cops/occupationsummarydetail.jsp?tid=76

b. Identify which stakeholder groups were consulted regarding demand/need for this program:

☑ Student/learners   ☑ Employers and professional associations
☑ Faculty   ☐ Community organizations
☑ Program advisory committee ☑ Other post-secondary institutions
☑ Regulator and/or accreditation   ☑ Indigenous stakeholders
bodies

c. Briefly discuss the results of the identified consultations and attach supporting documentation (e.g., minutes of meetings, letters of support, etc.), when available.

- In terms of internal stakeholder engagement, the Program Development Team engaged with faculty support staff, academic staff, student groups, library staff, the Office of the Provost, the Vice-Provost of Indigenous Programming & Research, and the Vice-Provost of Equity, Diversity & Inclusion in the development of the proposed Mechatronics and

Robotics Engineering program. This engagement included presentations, a Town Hall event, focus groups, recurring meetings, and surveys, as shown in the Record of Consultation found in Appendix C.

- In terms of external stakeholder engagement, the Program Development Team has consulted with industry stakeholders and sought letters of support from over a dozen companies, as shown in the Record of Consultation in Appendix C. The feedback gathered helped inform the program's vision and curriculum design, and has built support and excitement among prospective employers.

- Engagement with the stakeholder groups noted above has been crucial in developing the program and will continue to be vital as the program moves forward. The success of the program depends on the consultations identified in Appendix C not being the final step in our stakeholder engagement process. To this end, terms of reference are being developed for multiple program advisory committees so engagement and consultation can continue during the remaining phases of program development, during program implementation, and during steady-state program operation. Minimally, the Faculty commits to developing terms of reference to establish the following:

  - Indigenous Program Advisory Council,
  - Mechatronics Industry Advisory Committee (MIAC),
  - Equity, Diversity, and Inclusion (EDI) Committee.

- See Appendix D for letters of support from 17 industry stakeholders who are members and/or leads of the following organizations/businesses (listed in alphabetical order):

  - Avidbots
  - Canadian Space Agency
  - Copperstone Technologies
  - Epcor
  - General Dynamics Mission Systems International
  - Hexagon Positioning Intelligence
  - Mathworks
  - MDA
  - OroraTech
  - Pegasus Imagery
  - PCL Industrial Management Inc.
  - QinetiQ Target Systems
  - Rockwell Automation
  - Siemens Corporation, Corporate Technology
  - University of Alberta, Engineering Co-op Program
  - Wyvern Inc.

- Ten of the industry stakeholders we consulted explicitly stated an interest to support in an advisory capacity as the program develops, and we will invite them to serve on the Mechatronics Industry Advisory Committee (MIAC).

- Please refer to the Record of Consultation in Appendix C for a record of meetings, consultation, and engagement with stakeholders from all groups listed above in 2b.

d. Provide evidence of learner demand for this program. How was this demand determined? (Append supporting evidence, as appropriate e.g., survey results, waitlists, demand in similar programs at other institutions etc.)

- As mechatronics engineering is a multidisciplinary combination of electrical, computer, and mechanical engineering disciplines, it follows that one way to provide evidence of learner demand for mechatronics is to examine the learner demand for those three disciplines.

- The expectation is that there is sufficient learner demand to fill all of the proposed 100 seats per year in the program based on a level of student demand for mechatronics that is consistent with the existing level of demand for mechanical, electrical, and computer engineering programs in recent years.

- The existing level of demand for mechanical, electrical and computer engineering programs at the University of Alberta is shown in Table 4 for the years 2019-2022. The demand is shown as the percentage of all first-year students who indicated their first choice would be Mechanical, Electrical or Computer Engineering programs.

Table 4. Learner demand amongst first-year students for Mechanical, Electrical and Computer Engineering

	2019	2020	2021	2022
Percentage of all first-year engineering students who selected Mechanical, Electrical, or Computer engineering as their first choice of program	70.8%	69.6%	71.3%	72.9%

- As discussed above in the Projected Student Enrolment Section, students are admitted to a specialized program on a competitive basis based first of all on academic performance (GPA) in first year, and secondly on their program preferences. Figure 2 and Figure 3 below indicates there is consistently unmet learner demand for Mechanical, Electrical, or Computer Engineering. Figure 2 shows the number of first-year students in 2019-2022 who had selected Mechanical, Electrical, or Computer Engineering programs as their first choice but were placed into other programs. Figure 3 shows this unmet demand in terms of percentage of first-year students. For example, in 2022, 152 students were not able to be placed into Mechanical, Electrical, or Computer Engineering due to the high demand for those programs.
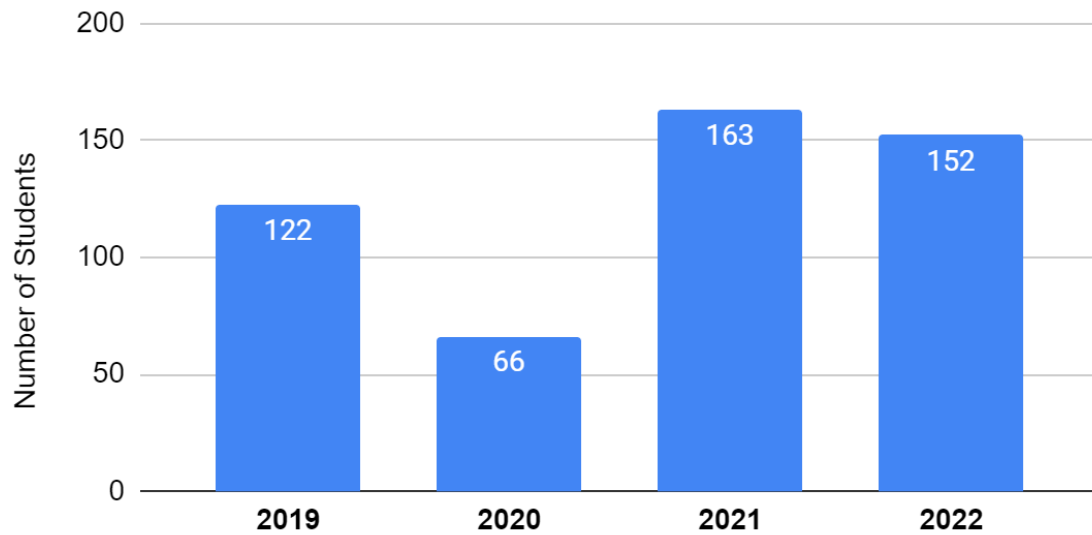
Figure 2. Unmet learner demand for Mechanical, Electrical, and Computer Engineering programs
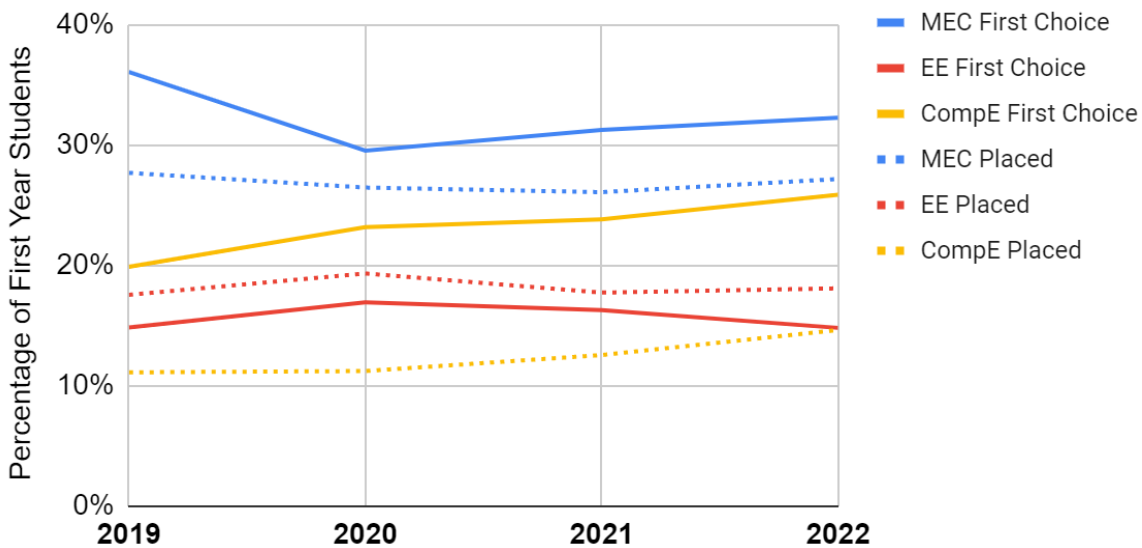
Figure 3. Percentage of first-year students choosing Mechanical, Electrical, and Computer Engineering programs and the percentage of first-year students who are admitted to the program of their choice.

- Student survey results indicate that 69% of undergraduate engineering students would choose the proposed Mechatronics and Robotics program if they could travel back in time to when they completed their Program Selection Form to indicate their first choice of program. The students who completed the survey are presently enrolled in 11 of the engineering programs offered by the Faculty, so although we received fewer survey responses than anticipated, the respondents are broadly representative of undergraduate students in the faculty. When asked how likely they would be to recommend the Mechatronics and Robotics program to students they know who are presently in junior

high or high school, 85% of respondents chose "very likely" or "definitely likely" as a response. When asked how important experiential learning is in an engineering program (e.g., hands-on projects, design courses, design competitions, co-op program), 97% of survey respondents responded "important to very important". The survey results indicate that current undergraduate students are very interested in the program, which can be reasonably extrapolated to mean there will be high learner demand for the program. For more information about consultation with undergraduate students, please refer to Appendix C.

● Another indicator of learner demand for a program in mechatronics and robotics is the popularity of student groups in Engineering at the University of Alberta. These interdisciplinary student groups are founded, organized, and led by undergraduate students, most often for the purpose of participating in design challenges and competitions at the national or international level. The overwhelming majority of the student-organized, student-led, student-founded clubs heavily feature robotics and mechatronics system design, including the following:
   ○ UAlberta Formula Racing
   ○ Student Team for Alberta Rocketry Research (STARR)
   ○ University of Alberta EcoCar Team
   ○ Albertaloop (University of Alberta Hyperloop Group)
   ○ Autonomous Robotic Vehicle Project
   ○ University of Alberta Aerial Robotics Group
   ○ University of Alberta Aero Design
   ○ University of Alberta Biomedical Technologies Development Group
   ○ AlbertaSat
   ○ Space Exploration Alberta Robotics
   ○ Mission SpaceWalker
   ○ RoboMaster Robotic Competition Team

● At the provincial level, our discussions with the University of Calgary provided further evidence that there is sufficient (and growing) learner demand in Alberta for mechatronics such that our student enrolment projections are reasonable. In discussions with faculty members of the University of Calgary's Department of Mechanical and Manufacturing Engineering, we were informed that their Mechatronics Minor program is heavily oversubscribed and they can only admit a portion of existing student demand.

● The first graduates of the proposed program would be newly licensed Professional Engineers in 2033, and the population in Alberta is projected to increase 17% between now and 2033. We expect this increase in population will be correlated roughly proportionately with the need for additional licensed Professional Engineers. With recent advances in robotics, AI and automation, it is generally accepted that demand for Mechatronics Engineers will exceed the baseline demand for Engineers in general.

● Several mechatronics programs are well-established in Ontario and Quebec, and learner and labour market demand for mechatronics programs have grown in Eastern Canada to the point where three new programs have been approved in the most recent few years (an increase of almost 50% in terms of programs offered). In Eastern Canada (east of Manitoba),

there is sufficient demand presently to support seven accredited programs, plus one new program that will graduate its first cohort in 2025, and two newly approved programs, for a total of 10 mechatronics programs. Given the population of Eastern Canada is 26.2 million (2022 data), there is one mechatronics program offered for each 2.6 million people. In comparison, if the proposed program is approved at the University of Alberta, there would be only two mechatronics degree programs in Western Canada, which would equate to one program for each 6.1 million people per program (i.e., more than twice the demand for mechatronics programs compared to Eastern Canada).

- Another indicator of learner demand is the organic engagement with the webpage. The webpage that introduces the proposed program as being in development is not linked from a main UAlberta page, nor has it been promoted. Between September 21, 2022 (page launch) and February 13, 2023, there were 772 organic pageviews. It is worth noting that of the 36 inquiries submitted via that webpage, more than 50% were prospective students, and almost 15% of inquiries were submitted by parents whose children are interested in studying mechatronics and robotics in the future.

- It is also important to note that there is still a significant gender gap in all STEM fields, and the Faculty will make continued efforts to support equitable access to and full participation in engineering for women and other historically underrepresented groups. A comprehensive equity, diversity, and inclusion (EDI) strategy has been developed for the proposed Mechatronics and Robotics Engineering program in order to increase the diversity of the student population (please refer to Appendix B). When the EDI strategy is fully implemented, we expect to attract applications and increase learner demand amongst historically underrepresented groups in engineering.

e. Identify and discuss any additional factors that may impact learner demand for this proposed program.

- Community awareness and understanding of engineering, and mechatronics engineering in particular, can impact the level of interest and demand for the program.
  - To raise awareness of engineering, the DiscoverE program operated by the Faculty of Engineering aims to promote engineering and technology to younger students, teachers, and the general public. The organization runs various outreach programs and events, including summer camps. The summer camps provide students with hands-on engineering and technology experiences, which will increase awareness of mechatronics and robotics engineering amongst primary and middle-school aged children.

- Learner demand in the field of mechatronics engineering is closely related to the development trends for advanced technologies such as artificial intelligence and robotics. Therefore, an increase in the rate of advancements in these fields can impact both the level of demand for mechatronics engineers and the learner demand for the program. It is expected that these advancements will lead to mechatronics systems becoming increasingly indispensable to a wide range of industries. Examples of this include drones and robots being used in agriculture, logistics and transportation, and resource extraction;

artificial intelligence (AI) being used in mechatronics systems to predict when equipment is likely to fail so maintenance can be scheduled before that happens; and rehabilitation robots, assistive devices, and prosthetics being used in medicine.

- The overall economic conditions in Alberta and Western Canada can impact the level of learner demand for the program. For example, during times of economic growth, there may be more job opportunities for mechatronics engineers, which can attract learners to the proposed program. Although the oil and gas industry has traditionally been one of the main drivers of economic growth, in recent years the province has been investing in sectors that develop and benefit from advanced technologies, which has led to economic growth in other sectors such as manufacturing, logistics, and agriculture industries, all industries that will increasingly employ mechatronics systems.

- The level of interest and preparedness of high school students in science and math can impact the level of demand for the program. In general, there has been an increasing interest in science, technology, engineering, and math (STEM) fields among high school graduates in Alberta and Canada due in large part to a growing awareness of the increasing number of job opportunities in STEM fields. The current Bridge2Engg program aims to help prepare incoming first-year engineering students for the transition to university, and the Faculty is also working to build partnerships with transfer colleges to improve access to engineering and improve the level of preparedness of students entering engineering programs.

- Canada is a popular destination for international students, and the demand for engineering programs among international students can be a factor that impacts the level of demand for the proposed program. International students are attracted to Canada for its high-quality education, diverse culture, welcoming society, and safe and stable environment. The most popular STEM fields among international students are computer science and engineering. Given this proposed program is a blend of mechanical, electrical, and computer engineering and given that it offers the opportunity to focus on the study of robotics, it is expected that it will be an attractive program for international students.

f. Briefly describe how the enrolment plan aligns with the anticipated demand for this program, taking into account the identified labour market demand and other Alberta program providers.

- The 95% overall placement rate for co-op students over the most recent 16 months indicates there is demand for co-op students, and that the Co-op program is sufficiently robust to scale to meet the demands of increased enrolment as a result of implementing the proposed program.

- The University of Alberta's *U of A for Tomorrow* (UAT) plan is to increase enrollment 25% by 2026 from 2020 levels, and the Faculty of Engineering is being asked to increase Full Load Equivalents (FLEs) to approximately 6,000 by 2026 (domestic + international students

combined). The implementation of the proposed program would contribute to meeting those enrolment targets.

- Labour market demand in the field of mechatronics is expected to increase due to employment growth, retirements, and demand for professionals with experience in advanced technologies, such as cyber-physical systems design and artificial intelligence.

- The only other Alberta program provider for accredited engineering education in mechatronics is the University of Calgary, which offers a Minor in Mechatronics option to students who have been admitted to their Mechanical Engineering, Electrical Engineering, or Software Engineering programs. In discussions with faculty members of the University of Calgary's Department of Mechanical and Manufacturing Engineering, we were informed that their Mechatronics Minor program is heavily oversubscribed and there is unmet learner demand for their program.

- Due to the projected increase in population in Alberta and the expected labour shortage conditions across Canada for Professional Engineers, the proposed enrolment of 100 students per year in the program is in alignment with the learner and labour market demand, while also meeting the institution's expectations for cost-effectiveness.

- It is important to note that once the program is established and operational, the program will be reviewed regularly and enrollment size will be adjusted as necessary to ensure that it is meeting both learner demand and labour market demand.

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g. Comment on the overall sustainability of learner demand for this program over the longer term.

- The overall sustainability of learner demand for the proposed Mechatronics and Robotics program will depend on a variety of factors that may change over time. To ensure the sustainability of learner demand, the program will need to continue to remain aligned with industry needs and be responsive to changes in the labour market. As such, an Mechatronics Industry Advisory Committee (MIAC) will be formed to provide input and feedback on a recurring basis to ensure the relevance and sustainability of the program. Nine industry stakeholders have already indicated their interest in serving on the committee in this capacity.

- The following positive trends can be considered when assessing the sustainability of learner demand for the program.

   ○ According to the Office of Statistics and Information — Demography and Social Statistics's most recent population projections, the Government of Alberta expects the population of the province to grow significantly over the next several decades, with the majority of the growth coming from net migration. The projections indicate that the population is expected to grow by about 1.89 million people between 2021 and 2046, with net migration accounting for 70% of population growth.

○ Technology advancements and growing interdisciplinarity in mechanical, electrical, and computer engineering will lead to new applications and job opportunities for mechatronics graduates, which will in turn lead to growth in learner demand for the program. The continued integration of artificial intelligence and machine learning techniques in mechatronics systems will create new opportunities for graduates to work in a growing number of industries. An increase in the diversity of industries in which graduates can work will expand the learner demand for the program.

Reviewer's Comment:

SECTION D: GRADUATE OUTCOMES AND PATHWAYS

1. Employment Outcomes *(Answer the following questions)*

a. For what types of career paths (including entrepreneurial and/or self-employment paths) and employment opportunities does the proposed program/specialization prepare graduates?

- The primary career path for this program is that of licensed Professional Engineer. Graduates of the BSc program will be able to practice in Alberta as an Engineer-in-Training (EIT) (registered with APEGA), and after 48 months of work experience under the direct supervision of a professional engineer, an EIT can apply to APEGA for a license to practice as a Professional Engineer (P. Eng).

- The proposed Mechatronics and Robotics Engineering program at the University of Alberta could prepare graduates for a wide range of career paths and employment opportunities.

- In terms of traditional career paths, graduates could pursue roles such as:
  ○ Mechatronics engineer: working in the design, development, and maintenance of mechatronics systems, such as robots, drones, and advanced manufacturing systems.
  ○ Control systems engineer: working in the design, development, and implementation of control systems for a wide range of applications, including industrial automation and robotics.
  ○ Systems integration engineer: working in the design, development, and integration of mechatronics systems into other systems, such as transportation systems, medical devices, and industrial equipment.

- A Mechatronics and Robotics Engineering program graduate can work in private practice, in research & development, as a self-employed independent consultant, for a consulting firm, for government, for utilities, or for industry.

- In terms of entrepreneurial and/or self-employment paths, graduates could also start their own businesses in the field of mechatronics, such as:
  - Designing and developing mechatronics systems and products for various industries
  - Consulting on mechatronics engineering projects
  - Providing mechatronics engineering services such as control systems design, systems integration, and mechatronics system testing and validation.
  - Examples of successful start-up companies in the field of mechatronics that were founded by or that employ University of Alberta graduates include Copperstone Technologies, Wyvern, and Pegasus Imagery.

- Engineers may advance to administrative or management positions. Career paths in management include project engineer, or project manager, and can include duties related to the design, evaluation, installation, operation and maintenance of mechatronics systems.

- Graduates of the Mechatronics and Robotics program will be well prepared for a wide range of employment opportunities including in research, design and development of robotics, process automation, embedded devices, artificial intelligence for autonomous systems, sensors and control systems, and systems for process monitoring and measurement for a wide range of industries, including but not limited to:
  - aerospace and defence,
  - agriculture and food production,
  - heavy industry (including in extreme environments),
  - automotive and transportation,
  - forestry,
  - smart cities and Internet of Things (IoT),
  - robotics and automation,
  - manufacturing,
  - energy and utilities,
  - renewable and natural energy systems,
  - medical devices, healthcare and precision health,
  - engineering management and safety.

b. In cases of regulated professions, how was the regulatory body consulted and what feedback did it provide in terms of labour market factors?

- The regulatory body, the Association of Professional Engineers and Geoscientists of Alberta (APEGA), indicated that they do not capture labour market data for the engineering profession in Alberta. For this reason, APEGA was not able to provide any feedback on labour market factors and advised that we consult with industry to determine labour market factors. Please refer to Appendix C for a summary and record of industry

consultation, and see Appendix D for letters of support from employers of Professional Engineers.

- Through consultation with industry, we heard that the following labour market factors are responsible for the growing demand for graduates of mechatronics engineering co-op programs:
  - Advanced technologies are needed to provide on-demand data collection and analytics at a scale suitable for industry and government demands.
  - Decision makers require large amounts of data to be collected and fused with edge-AI to enable real-time data analytics.
  - Aerospace engineering is just one example of a highly complex field that is multidisciplinary in nature and requires a systems approach.
  - The speed and pervasiveness of the technological transition to data-driven mechatronic systems is happening across all heavy industries.
  - Project-based, team-based, and industrially-embedded experiences are of critically important value to future engineering program graduates entering the workforce.

c. Identify existing or planned program or institutional supports that enable transition from post-secondary institution to work for graduates.

- The Faculty of Engineering provides support to graduates through *Engineering Career Connections* (formerly the Engineering Employment Centre) by organizing employer recruitment events, networking opportunities, and career and professional development workshops.

- Engineering students at the University of Alberta can access *VMock*, a virtual resume review tool, to see how their resume complies with best practices and stacks up against the relevant UAlberta benchmark.

- The University of Alberta's Career Centre is a resource for career and employment information and expertise. The Career Centre offers a Transition to Career (T2C) Program designed to help new graduates successfully navigate career transitions during and after university.

- The Innovation, Creativity and Entrepreneurship (ICE) Program is an initiative comprising curricular, co-curricular, and extra-curricular entrepreneurial resources developed by the Faculty of Engineering to provide students with experience and exposure to tech-based entrepreneurship. The ICE Technology Incubator is part of our experiential learning offerings and integrates with campus makerspaces to provide a dedicated space for students and recent alumni interested in commercializing technology and launching new start-ups and social ventures. An introductory course on entrepreneurship is an available elective for students looking to gain a foundational understanding of how to plan, design, and build a tech start-up.

Reviewer's Comment:

2. Learner Pathways

a. To what extent will learners be able to transfer credits to and from other post-secondary institutions?

- Students may complete their first year of study in Engineering at any of the approved postsecondary institutions in Alberta or in BC with which the University of Alberta has a transfer agreement in place, including Northwestern Polytechnic (formally Grande Prairie Regional College), Keyano College, Medicine Hat College, Red Deer Polytechnic, University of Lethbridge, Vancouver Island University, Northern Lights College, and College of the Rockies. These transfer programs provide a pathway into Engineering for both rural students and Indigenous students. Students who complete the Engineering Transfer Program at one of those institutions may apply to enter second-year Engineering at the University of Alberta and will be considered for program placement on an equal basis with continuing University of Alberta Engineering students.

- If there isn't an existing transfer agreement in place with the other post-secondary institution, each individual transfer application is reviewed to assess transfer credit (the application and review process applies in the case of transferring within the institution and in the case of transferring from other institutions).

- Students interested in a transfer to the University of Alberta from Alberta Institutes of Technology (e.g., NAIT, SAIT) would need to consult the Alberta Learning Information Service through Transfer Alberta and also contact the Faculty of Engineering concerning transfer of credit.

- Undergraduate students already enrolled in existing engineering programs (e.g., Electrical, Computer or Mechanical Engineering) will not be able to transfer into the Mechatronics and Robotics program due to the unique arrangement and subject matter of the courses in the program. Only students entering first year in Fall 2024 or later and then starting in the proposed Mechatronics and Robotics program in their second year will be eligible to complete the proposed program.

b. What types of further studies, if not within the same field, would graduates be most likely to pursue?

- The University of Alberta intends to propose a graduate program in Mechatronics and Robotics at a future date.

- There are graduate programs in many fields of engineering leading to the degrees of Master of Science (MSc), Master of Engineering (MEng), and Doctor of Philosophy (PhD). At the University of Alberta, a combined Master of Business Administration/Master of Engineering (MBA/MEng) degree program is also available.

- Graduates of the proposed Mechatronics and Robotics Engineering program at the University of Alberta may choose to pursue further studies in a variety of related fields,

depending on their interests and career goals. Graduates of the proposed program could pursue further studies in mechatronics, or in related fields such as biomedical engineering, mechanical engineering, electrical engineering, computer engineering, computer science, or in business and management (MBA).

- **Advanced Mechatronics and Robotics**: Graduates may choose to pursue advanced studies in mechatronics engineering, such as a Master of Engineering or PhD, to develop expertise in specialized areas of mechatronics engineering.

- **Artificial Intelligence and Machine Learning**: With the integration of AI and machine learning techniques in mechatronics systems, graduates may choose to pursue further studies in these fields to develop expertise in these areas.

- **Biomedical Engineering and Biomechatronics**: Graduates may choose to pursue further studies in the area of biomedical engineering and biomechatronics, to develop expertise in areas such as design, bio-materials, and biomedical process.

- **Robotics**: Graduates may choose to pursue further studies in robotics, to develop expertise in the design, development, and control of robots and other autonomous systems.

- **Computer Science**: Graduates may choose to pursue further studies in computer science, to develop expertise in software development, computer programming, and other areas related to mechatronics engineering.

- **Business and management**: Graduates may choose to pursue further studies in business and management, such as an MBA, to develop the skills needed to start their own businesses, become managers or leaders in industry and understand the business aspects of engineering.

- **Electrical Engineering**: Graduates may choose to pursue further studies in electrical engineering, to develop expertise in areas such as control systems, power systems, and communication systems.

- **Mechanical Engineering**: Graduates may choose to pursue further studies in mechanical engineering, to develop expertise in areas such as design, materials, and thermodynamics.

Reviewer's Comment:

3. Societal and Community Benefits *(if applicable)*

a. In cases where labour market demand is not the primary reason for this program, identify anticipated benefits from implementation of the proposed program to the wellbeing of communities in Alberta, particular those that your institutions serves:

- Not applicable. Labour market demand is the primary reason for this program.

Reviewer's Comment:

SECTION E: FINANCIAL VIABILITY AND SUSTAINABILITY

1. Budget and Funding Sources *(Answer the following questions)*

a. Describe how the institution plans to finance the program, (e.g. tuition, grants etc.):

- Due to the high utilization of existing human and capital resources within the Departments of Mechanical and Electrical & Computer Engineering, the program is expected to be revenue positive during steady-state operations.

- During program start up, the Faculty of Engineering has committed to funding the program ramp up and growth through a combination of operating funding and endowed funding sources.

- There is no requirement for additional external funding in order for the program to be successful, and tuition alone will fund the program.

b. Discuss risk mitigation plans should full revenue(s) not be achieved or should costs exceed amounts budgeted.

- Consultations with current and prospective learners in the program suggest that demand should be robust for this program, so the risk of lower than projected enrollment in the program is believed to be minimal. From our demand analysis, upwards of 70% of all engineering students are interested as a first choice of program one of Mechanical Engineering, Electrical Engineering, and Computer Engineering with the existing programs oversubscribed at the current time.

- Notwithstanding the above, from a revenue mitigation standpoint, as the program relies on a common first year where students rank their preferences, the ability to fill the majority or all of the seats planned for the program is significantly within the control of the Faculty of Engineering.

- As the Mechatronics and Robotics program will be housed administratively within the existing Department of Mechanical Engineering, nearly all of the administrative supports required to manage the program already exist, including Academic Leadership (Chair, Vice-Chair, Academic Department Manager), Technical Support (Technical Manager and Technicians), and Administrative support, both at the Department and the Faculty levels (Student Services, Co-op Services, etc.).

- In terms of projected incremental costs to mitigate, these primarily include the following:

  - **Academic salaries**: The Faculty has a strong level of control over this area. Academic teaching for this program will be supported through a combination of Tenured or

Tenure-Track Faculty and Academic Teaching Staff (ATS). As Academic Teaching Staff have higher teaching loads, the appropriate balance of ATS and Tenured or Tenure-Track Faculty provides a strong measure of control.

- **Teaching support**: The two major components of teaching support are teaching assistants (TAs) and technicians. As regular salaried employees, technician costs are predictable and controllable. Teaching assistant costs can be controlled holistically by allocating resources between courses based on a set available budget and the duties of the TAs can be managed with conversations with individual course instructors to modify assessments and other course support duties

- **Service teaching costs**: These are the costs for those courses which are delivered outside of the Mechatronics and Robotics program. The majority of the service teaching costs are associated primarily with courses delivered by the Faculty of Science and Faculty of Arts for the common first year courses shared amongst all Engineering programs. Increases in enrollments to those common courses as a result of implementing the proposed program have only moderate effects on the cost to deliver those courses. Further, the large size of these classes make them by definition revenue positive for the University.

Reviewer's Comment:

2. Tuition and Student Cost Considerations *(Answer the following questions)*
a. Document tuition and fee projections for students (specify domestic student tuition fees, international student tuition fees, compulsory student fees), and other costs likely to be incurred by students (texts, equipment etc.). Provide rationale where appropriate such as comparisons with similar programs. (Consult with the Ministry as needed.)

- Tuition and fees for domestic and international students are detailed below in Table 5 and Table 6, respectively.

- The breakdown of tuition and fees shown in the tables are based on the Sample Tuition Assessment provided by the Office of the Registrar via the online Cost Calculator.

- The domestic tuition fee is based on the approved exceptional tuition increase for Fall 2023.

    - The one-time cost for a laptop is also included in Tables 5 and 6 below.

Table 5. Domestic student tuition, fees, and other costs

Fee	Amount	Note
Tuition	$9,099	*Tuition amount for one year of study in engineering (domestic)*
Athletics and Recreation	$186	*This fee supports and provides free or discounted access to athletic and recreation opportunities including varsity athletics, group exercise, intramural sports, aquatics, instructional recreation, sport clubs, personal training, and sport development.*
Books, Supplies and Instruments	$1,200	*Average cost for books, supplies and instruments.*
Laptop	$1,500	*Average cost for computer equipment (one-time cost)*
PAW Centre Fee	$58	*This fee confers access to the Physical Activity and Wellness (PAW) Centre.*
Student Academic Support	$524	*This fee supports a range of academic support services delivered by the Dean of Students office, the Registrar's Office, International Student Services, etc.*
Student Health and Wellness	$129	*This fee supports a range of health and wellness services available to students, including medical services, mental health treatment and support, sexual assault services, and health promotion and community building initiatives.*
Students' Union Dedicated Fees	$172	*These fees are administered by the Students' Union and/or independent groups on campus.*
Students' Union Dental Plan	$156	*This fee covers the cost of enrolment in the Students' Union Dental plan for a 12 month period, from September 1 to August 31.*
Students' Union Health Plan	$159	*This fee covers the cost of enrolment in the Students' Union Health plan for a 12 month period, from September 1 to August 31.*
Students' Union Membership Fees	$113	*These fees are administered by the Students' Union and/or independent groups on campus.*
U-Pass	$360	*This fee provides eligible students with access to regular transit services on the Edmonton and surrounding services for the Fall and Winter terms (and Spring and Summer terms if enrolled).*
Estimated costs for one academic year	**$13,664**	*(domestic student)*

Please note that this is an estimate only, based on costs for the Fall 2023 academic year, and that all fees are subject to change.

Table 6. International student tuition, fees and other costs

Fee	Amount	Note
Tuition	$42,707	*Tuition amount for First Year engineering (international)*
Books, Supplies and Instruments	$1,200	*Average cost for books, supplies and instruments.*
Laptop	$1,500	*Average cost for computer equipment (one-time cost)*
Fees	$3,057	*Estimated non-tuition costs*
Estimated costs for one academic year	**$48,464**	*(international student)*

Please note that this is an estimate only, based on costs for the Fall 2023 academic year, and all fees are subject to change.

Table 7 shows a comparison of tuition at peer universities in Canada that offer similar programs in mechatronics and robotics.

Table 7. Comparison of domestic tuition fees for similar degree programs in Canada

	UAlberta	Waterloo*	Queen's*	SFU*
Domestic tuition for one academic year (i.e., 2 study terms)	$9,099	$13,970	$13,160	$9,191

*Based on publicly available 2022 or 2023 tuition fee schedules

Under the Alberta Tuition Framework, the Faculty of Engineering received approval from the Government of Alberta to implement a tuition increase that will enhance the Bachelor of Science in Engineering programs and the Masters of Engineering programs. These changes apply to all domestic students admitted to the Bachelor of Science in Engineering or Masters of Engineering program in Fall 2022 and later.

The additional funds will contribute to continuing to deliver top quality academic courses and allow the Faculty to continually improve while supporting key priority areas identified through on-going student consultation[1]:

- 24.5% of the increase will be allocated to improving course delivery by:
    - Increasing access to teaching assistants
    - Enhancing the qualifying-year program
- 33% of the increase will be allocated to improving course content by:
    - Modernizing the laboratory experience
    - Modernizing program content
- 16.8% of the increase will be allocated to increasing experiential and work-integrated learning opportunities by:
    - Establishing a work and research internship program
    - Expanding the Engineering Connects program
    - Increasing accessibility to the ELKO Engineering Garage (makerspace for student projects and extracurricular activities)
- 15.0% of the increase will be allocated to bursaries and hybrid awards established to support students from underrepresented demographics, students with families, or students with a demonstrated financial need
- 5.8% of the increase will be allocated to enhancing student services and support by:
    - Increasing access to career advisors
    - Investing in student well-being
- 5.0% of the increase will be allocated to emerging priorities of the student body; improvement areas to which these funds will be allocated will be determined based on feedback from ongoing student consultations.

1 Report: https://www.ualberta.ca/engineering/media-library/about-us/tuition-proposal-student-consultation-findings.pdf

b. Does the proposed program align with the Tuition and Fees Regulation? ☑ Yes; or ☐ No

c. Please elaborate on above answer, if necessary.

The tuition fees for the proposed program are the same as the fee index approved for Engineering (based on an exceptional tuition fee increase approved by the Ministry, as described above).

Reviewer's Comment:

SECTION F: INSTITUTIONAL IMPACT

1. Institutional Capacity *(Answer the following questions)*

a. Briefly describe how the proposed program aligns with the institution's mandate and government priorities.

- In line with the University's Institutional Strategic Plan, *For the Public Good*, the implementation of the Mechatronics and Robotics program will (i) modernize curricula, (ii) develop and implement new, forward-focused programs that reflect engineering disciplinary trends, and (iii) encourages collaboration, interdisciplinary research, and co-curricular experiences. The proposed program is also aligned with the University's strategic goal of student enrollment expansion.

- An Indigenization Strategy (see Appendix B) has been developed for the Mechatronics and Robotics program in alignment with the goals of the University of Alberta Indigenous Strategic Plan, *Braiding Past, Present and Future*. The Mechatronics and Robotics program will:
    - Acknowledge the impact of engineering on Indigenous peoples and communities
    - Understand what it means to be in relationship with Indigenous lands
    - Weave a variety of Indigenous worldviews, histories and perspectives into the program
    - Amplify Indigenous voices
    - Engage in consultation with Indigenous communities and businesses
    - Improve Indigenous access to the Mechatronics and Robotics Engineering program
    - Provide Indigenous-centered training for faculty and staff

- The equity, diversity, and inclusion (EDI) strategic initiatives described in the program's EDI Strategy (refer to Appendix B) will enable the Mechatronics and Robotics program to be in alignment with the institution's EDI strategic plan by having a plan in place to do the following:
    - Recruit and hire academic faculty members from historically underrepresented groups in academic engineering
    - Improve access to the mechatronics engineering program for historically underrepresented groups

- Challenge norms in engineering
- Incorporate EDI principles into the curriculum
- Create an inclusive environment
- Engage in on-going consultation
- Provide training for faculty and staff

- In addition to its alignment with Faculty and institutional priorities, the proposed Mechatronics and Robotics program is also aligned with provincial priorities in the areas of artificial intelligence (AI), and technological diversification. The Mechatronics and Robotics program will be the first of its kind in the Prairie provinces and the University of Alberta is well positioned to take advantage of this skills gap, contributing to the Government of Alberta's strategic vision for advancing innovation and diversification.

- The proposed Mechatronics and Robotics Co-op program offers every enrolled undergraduate student in the program a work-integrated learning opportunity, which responds directly to the aim of the *Alberta 2030: Building Skills for Jobs* strategy.

- Implementation of the proposed program would contribute to Alberta becoming a leading destination for top talent in Western Canada given there isn't another BSc program in Mechatronics and Robotics offered in the Prairie provinces.

- In alignment with the needs identified in the *Alberta 2030: Building Skills for Jobs* strategy, post-secondary education in mechatronics plays an important role in meeting the needs of the priority sectors of energy, agriculture, health, and technology. Because mechatronics combines the principles of mechanical engineering, electrical engineering, and computer engineering, the program provides graduates with the strong multidisciplinary foundation needed to design, develop, and maintain complex systems that are relevant to the aforementioned priority sectors. The development of technologies such as smart agriculture, precision health, and new energy technologies requires individuals with a deep understanding of the integration of hardware and software systems, as well as an ability to apply problem-solving skills. Mechatronics and robotics education provides students with the necessary skills and knowledge to meet the demands of these industries and contribute to the growth of these sectors, building Alberta's reputation as a technology hub.

- In alignment with the *Alberta 2030* strategy, the proposed program allows researchers at the University of Alberta to capitalize on the ground-breaking research they undertake by offering undergraduate students the opportunity to collaborate with their industry partners on capstone projects, which will lead to further advances in Alberta's innovation ecosystem and next-generation industries.

- In alignment with the summary of public feedback in the *Alberta 2030 engagement summary*, the professional practice, equity, diversity and inclusion, and Indigenization components of the program will ensure every student has the skills, knowledge and competencies to participate in civic life and enjoy fulfilling lives and careers (see Appendix B). To ensure that students are provided with greater transparency around

labour market outcomes, the Mechatronics Industry Advisory Committee will provide input, engage in consultation, and participate in program review on a regular basis.

- The program aligns with the provincial government's mandate to support economic growth by developing a highly skilled workforce in areas related to the development of advanced technologies. Robotics, automation, and the Internet of Things are critical to addressing a wide range of societal challenges, such as improving productivity, reducing costs, and increasing safety and efficiency. Mechatronics engineering is a field that is in high demand, and the program would provide graduates with the skills and knowledge needed to pursue a wide range of high-paying, high-demand jobs, which would contribute to the competitiveness of Alberta's economy in various industries such as manufacturing, transportation, agriculture.

- The program aligns with the Alberta government's priority to diversify the economy and reduce dependence on the oil and gas industry. As Mechatronics engineering is a field that has applications in a wide range of industries, the program would help to support the growth of other industries in Alberta, such as manufacturing, agriculture, and transportation.

- Mechatronics post-secondary education plays an important role in meeting the needs of the priority sectors of energy, agriculture, health, and technology. The multidisciplinary approach of the Mechatronics and Robotics program provides graduates with a strong foundation in working with complex systems, which is especially relevant to the aforementioned priority sectors. The development of technologies such as smart agriculture, precision health, and new energy technologies requires individuals with a deep understanding of the integration of hardware and software systems, as well as an ability to apply problem-solving skills. Mechatronics education provides students with the necessary skills and knowledge to meet the demands of these industries and contribute to the growth of these sectors.

b. To what extent does the program build on the institution's existing programs, infrastructure, resources and experience from offering programs in related fields?

- The proposed Mechatronics and Robotics Engineering program at the University of Alberta would capitalize on existing strengths and build on the institution's existing programs, infrastructure, resources, and experience from offering in Mechanical Engineering, Electrical Engineering, and Computer Engineering programs. These programs have already established a strong foundation in the areas of mechanics, materials, thermodynamics, control systems, power systems, and computer programming, and this knowledge would provide a strong foundation for the proposed Mechatronics and Robotics program.

- The program would also build on the University's existing infrastructure and resources. For example, the University already has well-equipped mechanical, electrical, and computer engineering labs, which would be suitable for mechatronics engineering. Additionally, the University has a variety of research centers and institutes that focus on

areas such as robotics, automation, and advanced manufacturing, and these resources would be leveraged to support the Mechatronics and Robotics program.

- Experience from existing programs in related fields would also be leveraged. For example, the University already has a strong reputation for its engineering programs, and the faculty members and staff who teach and support these programs would be well-positioned to teach and support the Mechatronics and Robotics program as well.

- The existing Mechanical Engineering Department and the Electrical and Computer Engineering Department will collaborate to provide a strong foundation for the new program. According to U.S. News, the existing programs at the University of Alberta rank as follows:
  - Mechanical Engineering ranks #2 in Canada, and #77 globally;
  - Electrical Engineering ranks #4 in Canada and #93 globally;
  - Computer Science ranks #5 in Canada and #100 globally;
  - Artificial Intelligence ranks #2 in Canada and #52 globally.

- The academic faculty members named as instructors in the proposed program (see Staffing Plan section of Part B, and see Appendix F for Instructor CVs) are engaged in research and scholarly activities related to mechatronics and robotics with a total awarded funding amount of $28.2 million (award start date: 2017-01-01 and end date: 2027-12-31).
  - Their projects touch on the following areas of mechatronics and robotics: controls systems, automation, advanced manufacturing, electronics engineering, industrial robots, intelligent control, intelligent systems, aerospace, cyber-physical systems, electromechanical systems, biomechatronics, sensors, actuators, and embedded systems.
  - Their many research and funding partners include the following:
    - *Research partners in mechatronics research (Universities/Government agencies/Non-profit organizations):* Alberta Innovates, Mitacs, NSERC, CIHR, Tri-agency Inst Programs Secretariat, University of Waterloo, University of Alberta, Aurora College, Yukon University, Alberta Health Service, Western Economic Diversification, Alberta Spine Foundation, Transport Canada, CFI, Labour, Canadian Networks of Centres of Excellence, University Health Network, Scoliosis Research Society, Canadian Space Agency, and endowment funding.
    - *Industry partners in mechatronics research:* Syncrude, Imperial Oil, Suncor, Enbridge, EPCOR, Groupe BBA, Hybrid Global, Landmark Group of Companies, and Honeywell International. The total matching funding from industry is $2.4 million.

- The program would capitalize on the abovementioned existing collaborations and partnerships with industry and other organizations in related fields. This would provide students with opportunities for experiential learning, co-op placements, industry-driven capstone projects, and potential job opportunities.

Reviewer's Comment:

2. **Internal Review and Approval**
a. Indicate which internal governance body recommended approval and specify date of approval.   ● Program Support Team approval, March 2, 2023   ●
Reviewer's Comment:

SECTION G: SYSTEM IMPACT

1. **Program/Specialization Duplication** *(Answer the following questions)*
a. Does the proposed program/specialization potentially duplicate existing programming in the Alberta Adult Learning System? ☐ Yes; or ☑ **No**
b. If yes, list these programs.
c. If proposed program/specialization potentially constitutes program duplication, explain why such duplication is appropriate and beneficial in this circumstance.   ● Not applicable.
Reviewer's Comment:

SECTION H: OTHER CONSIDERATIONS

Other considerations
a. Are there other factors or considerations the Ministry should take into account when reviewing this proposal?   The **unique dimensions** that set the proposed program apart from other similar programs and provide new educational opportunities for students include the following: ● Work integrated learning is provided via two co-op terms, one 8-month term and one 12-month term, which were informed by the feedback we heard from industry that co-op

terms of 8 months or longer are more valuable to industry than co-op terms that are 4 months in duration.

- Experiential learning is delivered in each year of the program through a series of design-focused courses wherein students will have the opportunity to both physically and virtually build their designs in response to open-ended design challenges.
- Interactive and group learning opportunities are offered in both fundamental and design courses.
- A robotics-focused core program has been designed with an emphasis on the fundamentals while keeping industry needs and employability in mind.
- The program features exciting elective themes/streams selected from the most current topics in mechatronics: Aerospace; Advanced Manufacturing; Cyber-physical Systems; Intelligent Robotics; and Biomechatronics.
- The academic staff who will teach in the program are also accomplished researchers conducting world-class mechatronics and robotics research.
- Indigenous worldviews, histories, and perspectives are woven throughout the curriculum in a meaningful way, and equity, diversity and inclusion are also addressed to foster an equitable, diverse, and inclusive working and learning environment (see Appendix B).
- The perspectives and recommendations of industry stakeholders, and of Indigenous and EDI knowledge holders will be considered in the context of on-going consultation and during more formal regularly-scheduled program reviews.

Student workload: Because the curriculum is drawn from reputed and longstanding Electrical, Computer, and Mechanical Engineering programs and includes more than 20 new mechatronics- and robotics-specific courses (see Appendix A), its multidisciplinary nature has the potential to result in an increased workload for students relative to other programs. For this reason and to ensure students will succeed in the program, special attention has been paid to be mindful of student workload in the design of the curriculum and to ensure the lab-component of courses are used to provide experiential hands-on learning. The total number of instructional hours (lecture, seminar, and lab combined) for the proposed program positions it on par with other existing programs offered by the Faculty of Engineering. The introduction of new courses and the renewal of existing courses as part of this new program will provide opportunities to leverage online and asynchronous learning tools in select course components (such as seminar activities), and thus enable students to engage in self-paced learning with the goal of using learner time most efficiently and improve learning outcomes.

Reviewer's Comment:

RECOMMENDATION (FOR DEPARTMENT USE)
Recommendation(s):

Rationale for Recommendation:

Reviewer(s):

Date Completed:

Proposal Template: New Degree Programs and Specializations

(Part B: Campus Alberta Quality Council Review)

If a proposed program receives a positive outcome from the System Coordination Review, the Minister may refer the program to the Campus Alberta Quality Council for quality assessment, the second stage of review.

The onus is on the applicant institution to satisfy CAQC that the level of learning to be achieved is consistent with that which is expected at the proposed degree level, that the program has sufficient breadth and rigour to meet national and international standards as outlined in, for example, the Canadian Degree Qualifications Framework (CDQF) and the Alberta Credential Framework (ACF), and that the program is comparable in quality to similar programs (if any) offered in Alberta and elsewhere. The program proposal should demonstrate how CAQC's program quality standards and any applicable guidelines have been addressed and describe any unique dimensions that set the program apart from similar programs thus providing new educational opportunities for students.

NOTE: Part A of the program proposal may undergo changes as a result of the System Coordination Review. It is important that Part A be up-to-date and complete before it is forwarded to CAQC. Building on the information provided in Part A, the program proposal that is sent to CAQC should contain the additional information requested below. When possible, links to existing policy documents and institutional policies should be provided, rather than recopying them in response to questions.

SECTION A: PROGRAM SPECIFICS

1. Program Learning Outcomes (PLO)

a. Provide the program's learning outcomes (as presented in Part A of the proposal).

PLO 1. A knowledge base for engineering: Demonstrated competence in university level mathematics, natural sciences, engineering fundamentals, and specialized engineering knowledge appropriate to the program.

PLO 2. Problem analysis: An ability to use appropriate knowledge and skills to identify, formulate, analyze, and solve complex engineering problems in order to reach substantiated conclusions.

PLO 3. Investigation: An ability to conduct investigations of complex problems by methods that include appropriate experiments, analysis and interpretation of data, and synthesis of information in order to reach valid conclusions.

PLO 4. Design: An ability to design solutions for complex, open-ended engineering problems and to design systems, components or processes that meet specified needs with appropriate attention to health and safety risks, applicable standards, and economic, environmental, cultural and societal considerations.

PLO 5. Use of engineering tools: An ability to create, select, apply, adapt, and extend appropriate techniques, resources, and modern engineering tools to a range of engineering activities, from simple to complex, with an understanding of the associated limitations.

PLO 6. Individual and team work: An ability to work effectively as a member and leader in teams, preferably in a multi-disciplinary setting.

PLO 7. Communication skills: An ability to communicate complex engineering concepts within the profession and with society at large. Such ability includes reading, writing, speaking and listening, and the ability to comprehend and write effective reports and design documentation, and to give and effectively respond to clear instructions.

PLO 8. Professionalism: An understanding of the roles and responsibilities of the professional engineer in society, especially the primary role of protection of the public and the public interest.

PLO 9. Impact of engineering on society and the environment: An ability to analyze societal and environmental aspects of engineering activities. Such ability includes an understanding of the interactions that engineering has with the economic, health, safety, legal, and cultural aspects of society, the uncertainties in the prediction of such interactions; and the concepts of sustainable design and development and environmental stewardship.

PLO 10. Ethics and equity: An ability to apply professional ethics, accountability, and equity.

PLO 11. Economics and project management: An ability to appropriately incorporate economics and business practices including project, risk, and change management into the practice of engineering and to understand their limitations.

PLO 12. Life-long learning: An ability to identify and to address their own educational needs in a changing world in ways sufficient to maintain their competence and to allow them to contribute to the advancement of knowledge.

2. Program Structure

a. Provide a comprehensive outline of the entire program curriculum, listing the course names, course numbers, and credits for all required courses and specified electives. Indicate which courses are new for this program. Where applicable, specify the requirements for any minors, work-integrated learning (WIL), specific general education or breadth elements, or other elements that are part of the program.

See Appendix A for a list of the calendar entries for all required courses and specified electives, including the calendar designation for credits and numbers of lecture, lab seminar, tutorial hours, etc. For new courses under development, a tentative calendar entry has been provided. For additions/revisions to existing courses, the Faculty commits to approving the calendar changes before program implementation.

The **unique dimensions** that set the proposed program apart from other similar programs and provide new educational opportunities for students include the following:

- Work integrated learning is provided via two co-op terms, one 8-month term and one 12-month term, which were informed by the feedback we heard from industry that co-op terms of 8 months or longer are more valuable to industry than co-op terms that are 4 months in duration.
- Experiential learning is delivered in each year of the program through a series of design-focused courses wherein students will have the opportunity to both physically and virtually build their designs in response to open-ended design challenges.
- Interactive and group learning opportunities are offered in both fundamental and design courses.
- The curriculum is drawn from reputed and longstanding Electrical, Computer, and Mechanical Engineering programs, but with >20 new mechatronics-specific courses.
- A robotics-focused core program has been designed with an emphasis on the fundamentals while keeping industry needs and employability in mind.
- The program features exciting elective themes/streams selected from the most current topics in mechatronics: Robotics, Aerospace; Advanced Manufacturing; Cyber-physical Systems; Intelligent Systems; and Biomechatronics.
- The academic staff who will teach in the program are also accomplished researchers conducting world-class mechatronics research.
- Indigenous perspectives are woven throughout the curriculum in a meaningful way.
- The most current best practices in equity, diversity and inclusion are incorporated into the core part of the program.
- Industry, Indigenous, and EDI perspectives will be incorporated in regular program reviews.

b. If the curriculum includes a WIL component(s), provide the following information:

i. how placements will be arranged, and what resources and/or personnel the institution will make available to undertake these processes.

Since 1981, the Faculty of Engineering's Co-op program at the University of Alberta has been a national leader in cultivating student talent by preparing tens of thousands of students for the demands of an ever-changing global economy so they can fast-track

their careers. The Co-op program exists in all engineering disciplines and comprises approximately 42% of all Engineering students after the common first year.

The Co-op Office provides students with a committed team of employment professionals who administer the work term component of the Engineering Co-op Program and bring students and potential employers together.

The team includes Employer Relationship Managers (ERM) and Co-op Program Advisors (PA) who:
- market the program to employers with suitable engineering-related jobs to encourage them to participate in the program;
- foster long-term professional relationships with organizations to maintain ongoing participation in the program;
- administer the technical details of each recruitment cycle, including advertisement of co-op opportunities to students, scheduling employer co-op information sessions and interviews, and communicating offers of employment;
- ensure that the interests of both employers and students are protected within the recruitment and work periods;
- provide significant assistance in identifying appropriate employment opportunities and provide insight and up-to-date information on the current job market;
- counsel students in their job search, and advise students on employment application decisions and final job selections;
- provide program orientation through group and individual instruction in the course *ENGG 299 - Orientation to Cooperative Education*;
- provide ongoing employment/recruitment counseling on topics such as resume writing, interview skills, and job search techniques;
- provide individual advising and assistance to students whose attempts to find employment are unsuccessful;
- guide students to make the most of their work term placements;
- meet with students each semester so they can become familiar with their skills and interests;
- evaluate student performance on the job through on-site evaluations and assignments, and facilitate conversations where students reflect on their co-op experience as it pertains to their academic program;
- provide students with personalized advice; and
- uphold the policies of the Engineering Co-op Office.

The ultimate responsibility for obtaining suitable employment for each work term rests with the student. It is possible for students to secure employment independently through their own search, but they must notify the Co-op Office immediately to ensure it qualifies for the program.

ii. expectations and obligations of student and host and how these will be coordinated.

Expectations of students:
- Students must actively participate in the co-op recruitment process in addition to conducting a personal job search
- Students must follow certain recruitment processes, comply with the Co-op Program Terms & Conditions, and comply with employment regulations.

- Students are expected to conduct themselves professionally regarding all aspects of their job search and employment term.
- Engineering co-op students are obligated to uphold the University of Alberta Code of Student Behaviour, APEGA Code of Ethics, Alberta Engineering & Geoscience Professions Act.
- If the co-op student is completing their final work term, they will complete a work-related technical report.

The Program may withdraw its recruiting services from students who, without just cause, violate the established regulations. In these cases, students would be expected to find their own employment.

Employer responsibilities:
- Hiring a co-op student is just like hiring any other temporary employee and employers must follow all labour laws and regulations.
- The employer must facilitate a mid-term onsite visit by a Co-op Program Advisor or Employer Relationship Manager.
- At the end of the student's placement, the employer will be asked to complete an evaluation form.

The mid-term onsite meeting between the employer, student and a Co-op Program Advisor or Employer Relationship Manager is an integral part of the Co-op Program. More than just a performance evaluation, it is the opportunity for the Co-op program to ensure that both student and supervisor are finding the co-op experience valuable.

iii. how mentoring and supervision of students during their WIL experience will take place.

As with any employee, co-op students require a certain amount of mentoring and supervision. The degree of direct supervision varies depending upon the nature of the assignment and personal supervisory styles. It is safe to say, however, that because the students have completed a full 50% of their studies before beginning their first co-op placement, they are quite capable of working independently. As a partner in the process of educating future engineers, employers will have many opportunities to introduce students to progressively more challenging tasks.

iv. how evaluation of student performance will occur.

Co-op students are required to submit a work term report on an assigned topic each work term. Failure to submit a report that scores satisfactory or better will result in a grade of Fail (NC) for that work term.

At the end of the placement, the employer will complete an evaluation form based on non-technical skills such as attitude, initiative, communication skills, planning, and organizational abilities. The Co-op Program Advisor / ERM will send the evaluation form to the employer. This final evaluation, in conjunction with the mid-term on-site evaluation and a work term report prepared by the student, will determine whether or not the student receives credit for the work term.

The evaluation and documentation of student performance on work term placements includes:
- Visiting students at work sites to conduct on-site evaluations
- Evaluating ENGG 299 and work term reports
- Recommending that credit be awarded for each work term
- Maintaining student records
- Recommending students for graduation following the successful completion of the required months of work experience

v. how opportunities will be afforded to students to reflect on how the WIL experience contributed to their degree program.

- Students will have the opportunity to reflect on their co-op experience and how it contributes to their degree program during the mid-point on-site evaluation meeting between the student and the Program Advisor. Students are asked questions pertaining to their experience, including some version of the following question: "*Tell me how your co-op experience is related to your program*". There is an oral reflection at every on-site meeting at each co-op placement.

- Students are also offered an opportunity to reflect on the value of their co-op experience during the writing of their work experience reports. Both the WKEXP 901 and WKEXP 904 assignments include an opportunity to reflect, as described below.

- WKEXP 901 report assignment includes the following criteria:
  - Describe the opportunities available for learning in the organization.
  - Based on this information, provide an analysis of your work preferences, which can help you in deciding the direction of your future work terms. Discuss your preferences regarding

- WKEXP 904 report assignment includes the following criteria:
  - Create an ideal career path/plan for yourself based on your co-op and other work experiences.
  - Develop a plan for your job search.
  - In order to provide perspective on your career plan, interview three or more graduate engineers at varying stages of their careers.
  - Describe any similarities or differences between the information provided by the engineers to your planned career path. Analyze how your perceptions relate to real world experiences of the graduate engineers.

- In the WKEXP 904 assignment, the student is required to reflect on their WIL experience, have discussions with engineers, and then reflect on their career plan and how it relates to their degree program.

vi. If not already included above, indicate the resources and/or personnel that the institution will make available to undertake these processes as well as any other relevant features of the WIL component.

A relevant feature not already included above is that up to one year of the 20-months of completed work experience can be used towards Professional Engineering (P. Eng)

designation. When applying for P. Eng designation, the work will be assessed by the Association of Professional Engineers and Geoscientists of Alberta (APEGA).

c. Provide a summary outline of the program structure and requirements in a table that indicates the number of junior and senior courses, and credit totals, for the components listed in the sample table below. Additional components, such as minors or general education may be added as appropriate.

Table 8: Program structure

Component		Junior courses (maximum)	Credits	Senior courses (minimum)	Credits
Requirements	Required courses	25	70	19	55
	Program technical electives	0	-	4	12
	Complementary studies elective	0	-	1	3
	ITS (*Impact of Technology on Society*) elective	0	-	1	3
Total		25	70	25	73

d. For undergraduate degrees, demonstrate (in a table, if possible) how the program meets the structural requirements for the relevant degree type as set out in CAQC's Expectations for Design and Structure of Undergraduate Degrees (Handbook s. 4.3.3.).

Bachelor's Degree: BSc in Mechatronics and Robotics Engineering

This degree is awarded to students who have demonstrated:

This expectation is developed through the following Program Learning Objectives:

Depth and Breadth of Knowledge	a) Knowledge and critical understanding in a field of study that builds upon their secondary education and includes the key assumptions, methodologies, and applications of the discipline and/or field of practice	1, 2, 3, 4
	b) Basic understanding of the range of fields within the discipline/field of practice and of how the discipline may intersect with fields in related disciplines	5, 6, 10, 12
	c) The ability to gather, review, evaluate, and interpret information, including new information relevant to the discipline, and to compare the merits of alternate hypotheses or creative options relevant to one or more of the major fields in a discipline	2
	d) The capacity to engage in independent research or practice in a supervised context	1, 2, 3, 4
	e) Critical thinking and analytical skills inside and outside the discipline	5, 6, 7
	f) The ability to apply learning from one or more areas outside the discipline	9, 10, 11, 12

Knowledge of Methodologies and Research	a) An understanding of methods of enquiry or creative activity, or both, in their primary area of study that enables the student to (i) evaluate the appropriateness of different approaches to solving problems using well established ideas and techniques, (ii) devise and sustain arguments or solve problems using these methods, and (iii) describe and comment upon particular aspects of current research or equivalent advanced scholarship in the discipline and on their relevance to the evolution of the discipline	1, 2
	b) The ability to review, present, and critically evaluate qualitative and quantitative information to (i) develop lines of argument; (ii) make sound judgments in accordance with the major theories, concepts, and methods of the subject(s) of study; (iii) apply underlying concepts, principles, and techniques of analysis, both within and outside the discipline; and (iv), where appropriate, use this knowledge in the creative process	2, 3, 4, 7, 8, 10
Application of Knowledge	a) The ability to use a range of established techniques to (i) initiate and undertake critical evaluation of arguments, assumptions, abstract concepts, and information; (ii) propose solutions; (iii) frame appropriate questions for the purpose of solving a problem; (iv) solve a problem or create a new work	1, 2, 3, 4, 5
	b) The ability to make critical use of scholarly reviews and primary sources.	3, 5, 8
Communication Skills	The ability to communicate information, arguments, and analyses accurately and reliably, orally and in writing, to specialist and non-specialist audiences, using structured and coherent arguments, and, where appropriate, informed by key concepts and techniques of the discipline.	6, 7, 8, 9, 10
Awareness of Limits of Knowledge	An understanding of the limits to their own knowledge and ability; an appreciation of the uncertainty and ambiguity of and limits to knowledge, and an appreciation of how this might influence analyses and interpretations.	5, 7, 8, 9
Professional Capacity/ Autonomy	Qualities and transferable skills necessary for further study, employment, community involvement, and other activities requiring (i) the exercise of initiative, personal responsibility and accountability in both personal and group contexts, (ii) working effectively with others, and (iii) behaviour consistent with academic integrity	5, 8, 9, 10, 12

3. PLO Mapping

a. Provide a mapping of the courses to the PLOs. Although proponents may choose alternative ways to present a curriculum map, the following example represents one way required and elective courses in a specialization can be mapped to PLOs to demonstrate

- how the courses that fulfill the requirements for the specialization (major) contribute to the achievement of the learning outcomes, and
- a progression in the development of the PLOs across these courses.

Although all courses in a program contribute to PLOs, the focus in this map is on the courses that constitute the specialization.

Legend for PLO mapping table below

I: Indicates that knowledge and skills to help learners achieve this PLO are introduced in this course

D: Indicates that knowledge and skills to help learners achieve this PLO are further developed in this course

M: Indicates that knowledge and skills to help learners achieve this PLO are mastered (appropriate to the degree level) in this course

Course number and name	Program learning outcomes											
	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7	PLO 8	PLO 9	PLO 10	PLO 11	PLO 12
Required core courses in the program												
TERM 1												
CHEM 103 Intro Chemistry I	I											
ENGG 100 Success in Engineering								I	I	I	I	I
ENGG 130 Engineering Mechanics	I	I										
MATH 100 Calculus I	I											
PHYS 130 Wave Motion, Optics, & Sound	I	I										
ENGL 199 English for Engg Students						I	I, D					
TERM 2												
	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7	PLO 8	PLO 9	PLO 10	PLO 11	PLO 12
CHEM 105 Intro Chemistry II	I											
ENCMP 100 Computer Programming for Engineers	I	I		I	I							
ENGG 160 Intro to Engg Design, Communication, and Profession					I	I	I	I	I	I	I	I

EN PH 131 Mechanics	I	I									
MATH 101 Calculus II	I										
MATH 102 Applied Linear Algebra	I										

TERM 3											
	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7	PLO 8	PLO 9	PLO 10	PLO 11	PLO 12
MCTR 202 Electric Circuits for Mechatronics	D	D		I	I						
MCTR 274 Programming with Data Structures and Algorithms for Mechatronics I		D			D						
CIV E 270 Mechanics of Deformable Bodies I	D	D									
MATH 209 Calculus III	D										
MCTR 240 Signals and Systems	I	I									
MATH 201 Differential Equations	D										

TERM 4											
	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7	PLO 8	PLO 9	PLO 10	PLO 11	PLO 12
MCTR 260 Mechatronics and Robotics Design I	D	D	D	D	D	D	D	D	D	D	D	D
MCTR 265 Computer-Aided Design for Mechatronics				D	D	D	D	D	D	D	D	D
MEC E 230 Introduction to Thermo-Fluid Sciences	D	I									
MCTR 210 Digital Logic Design and Microprocessors		I									

	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7	PLO 8	PLO 9	PLO 10	PLO 11	PLO 12
ECE 342 Probability for Electrical and Computer Engineers	D											
MEC E 250 Engineering Mechanics II	D	D										
ENGG 299 Orientation to Cooperative Education												

TERM 5

	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7	PLO 8	PLO 9	PLO 10	PLO 11	PLO 12
MCTR 320 Feedback Control Systems	D	D										
MCTR 374 Programming with data structures and algorithms for mechatronics II		D		D	D							
MCTR 300 Electronics, Sensors, and Data Analysis	D	I	D	D								
MCTR 355 Introduction to Systems Engineering for Mechatronics	D	D			D				D	D	D	D
MCTR 357 Robotic Manipulators	M	D	D	D	D							
MCTR 350 Advanced Dynamics	M		D		D							

TERM 6

	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7	PLO 8	PLO 9	PLO 10	PLO 11	PLO 12
MCTR 360 Mechatronics and Robotics Design II	M	D	D	D	D	D	D, M	D	D	D	D	D
MCTR 365 Computer-Aided Machine Design		D		M	M	D	D, M	D	D		D	D
ECE 315 Computer Interfacing		I			D							
MCTR 332 Actuators, Machines, and Power Electronics	D	I	D	D	D							

MCTR 399 Analytical and Numerical Methods for Mechatronics		D	D									
MCTR 370 Machine Learning for Mechatronics	M	D	D	D								

TERM 7

	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7	PLO 8	PLO 9	PLO 10	PLO 11	PLO 12
MCTR 460 Design Project I	M	M	M	M	M	M	M	M	M	M	M	M
MCTR 420 Modern Control Theory for Mechatronics	M	D		D								
ENG M 401 Financial Management for Engineers								D, M				
Complementary Elective									D	D		D

TERM 8

	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7	PLO 8	PLO 9	PLO 10	PLO 11	PLO 12
MCTR 461 Design Project II	M	M	M	M	M	M	M	M	M	M	M	M
MCTR 421 Estimation Theory for Mechatronics	M	D										
ENGG 400 The Practice of the Engineering Profession								M	M	M	M	
MCTR 465 Mobile Robotics	M	M	D	M	M							
Impact of Technology on Society Elective								D	D, M			D

PROGRAM / TECHNICAL ELECTIVES

	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7	PLO 8	PLO 9	PLO 10	PLO 11	PLO 12
Program and Tech Electives	M	M	M	D	M	D	D	D	D	D	D	M

4. Alignment with Alberta Credential Framework (ACF)

Since graduates are also expected to demonstrate the degree-level expectations in each of the six knowledge and skill areas set out in the ACF (see the CAQC Handbook), describe how the proposed program meets the expectations in each of the areas listed below, and how the academic culture helps learners achieve these expectations.

As indicated in the mapping table above (Program Structure Section 2-d), because the curriculum is designed to meet the Canadian Engineering Accreditation Board criteria (graduate attributes and program learning outcomes), the curriculum as such provides ample opportunities for students to develop the knowledge and skills and meet the expectations set out in the ACF.

a. Depth and breadth of knowledge:

The Mechatronics and Robotics program is designed to provide students with in-depth knowledge and hands-on experience in multiple areas of engineering, including mechanical, electrical, computer, controls, systems and software engineering. This will equip them with a well-rounded understanding of the field and the ability to apply their knowledge to solve complex problems. Although the field of mechatronics spans three disciplines, the program is designed to strike a balance between breadth and depth.

b. Conceptual awareness and/or knowledge of research: (i.e., knowledge of approaches to inquiry and/or creative work)

The Mechatronics and Robotics program includes a comprehensive set of design courses that provide opportunities for students to conduct independent inquiry and research in order to solve open-ended design problems. This will help students understand how to approach complex problems and develop a mindset for inquiry and creative work. In other words, the approaches to inquiry are addressed in the design courses wherein students will make sound judgments in accordance with the major theories, concepts, and methods, apply underlying concepts, principles, and techniques of analysis, both within and outside the field of mechatronics, and use this knowledge in the creative process to answer open-ended design problems and challenges.

c. Communication skills:

The Mechatronics and Robotics program includes coursework and team design projects that require students to present their work, collaborate with others, and communicate effectively with different audiences (peers, clients, instructors, the public, etc.). This will help students develop their communication skills and prepare them for real-world situations.

d. Application of knowledge:

The Mechatronics and Robotics program includes hands-on projects that require students to apply their knowledge to design, build, and test mechatronic systems. This will help students develop their technical skills and problem-solving abilities, and prepare them for situations in which they will need to both design and debug complex mechatronics systems.

e. Professional capacity and autonomy:

The Mechatronics and Robotics program includes coursework and projects that require students to work independently, take responsibility for their own learning, and develop their professional skills. This will help students develop their professional capacity and prepare them for autonomous roles in the workplace.

Both the EDI and Indigenization strategies (see Appendix B) include initiatives to weave diverse perspectives throughout the curriculum will produce graduates with a wider lens and a broader set of perspectives with which to view personal responsibility and accountability in both personal and group contexts.

f. Awareness of limits of knowledge:

The Mechatronics and Robotics program includes courses that introduce students to the interdisciplinary nature of the field and provide opportunities for them to learn about the limitations and uncertainties of various engineering approaches. This will help students develop an awareness of the limits of their knowledge and prepare them for lifelong learning and professional development. In particular, the systems engineering course will introduce students to Indigenous Ways of Knowing so that students will develop an awareness of more than one knowledge system, which will contribute further to an understanding of the limitations of any one single approach and of the need for lifelong learning.

5. Requirements and Pathways for Admission and Academic Progression

a. Provide the following information:

i. admission criteria (including any provision for prior learning assessment)

Admissions to the Faculty of Engineering at the University of Alberta are done on a competitive basis. High school students are only admitted into the first year program (i.e., qualifying year), and students with less than 30.0 engineering units of postsecondary transfer credit are also admitted into the first-year program. The minimum high school average for students entering directly from high school is reviewed annually and may be adjusted based on demand and space availability. After completing the first-year program, students are admitted to specialized programs based on their academic performance and program preferences, which are communicated through a Program Selection Form.

High School Applicants must meet the following Subject Requirements:

1. English Language Arts 30-1
2. Chemistry 30
3. Mathematics 30-1
4. Mathematics 31
5. Physics 30

Students whose final high school average across the five required subjects (or their equivalents if the applicants are from other provinces or territories of Canada) is at or above the minimum average are admitted to first year. The minimum average will be publicly available on the Faculty of Engineering website.

ii. residency requirements

The expectation for a student working towards a Bachelor of Science degree in Engineering is to complete half of the total credit requirements through courses offered by the University of Alberta, either on or off-campus during Fall/Winter or Spring/Summer. Typically, a majority of these University of Alberta courses will be from Terms 5 through 8, as outlined in the program requirements for the Faculty of Engineering traditional and co-op programs. Credits earned through special assessment at the University of Alberta may also be included in fulfilling the residence requirements. In cases where a student has transferred from another accredited engineering program at a Canadian university and has the equivalent of six full terms of transfer credit, reducing the residence requirement to one academic year consisting of two full terms may be considered.

iii. academic performance progression requirements

Promotion: A student's progress is evaluated on completion of academic studies for Fall/Winter and on completion of any academic term occurring in Spring/Summer that is a scheduled term within the student's degree program. Evaluation is on the basis of the Fall/Winter GPA or Spring/Summer GPA.

Satisfactory Standing: Fall/Winter or Spring/Summer GPA of 2.0 or greater. Promotion, repeating any failed course(s).

Marginal Standing-Academic Warning: Fall/Winter or Spring/Summer GPA of 1.7 to 1.9 inclusive. Proceed to next term on academic warning, repeating any failed course(s) and other courses as specified by the Dean, unless one of the following conditions applies, in which case the student must withdraw:
- occurs immediately upon completion of the qualifying year
- previously on academic warning on two or more occasions
- previously required to withdraw and previously on academic warning
- already on academic warning or probation

Students on academic warning or probation will be evaluated at the end of each term. Spring/Summer is not considered a term unless it is a scheduled term within the student's degree program. To clear academic warning or probation, a student must

achieve an engineering term average of at least 2.0 while carrying a minimum course load of 14.0 units.

iv. graduation requirements applicable to the program

Requirements to Graduate: To graduate, a student must pass all courses required by the specific program; have an Engineering Graduation Average (EGA) of 2.0 or greater (calculated based on the final four academic terms); be in satisfactory academic standing, i.e., have a Fall/Winter GPA of 2.0 or greater.

A student who is otherwise eligible to graduate but has an EGA of less than 2.0 and/or a Fall/Winter GPA in the range 1.7 to 1.9 is permitted to return for one additional term provided this term falls within the 72 month degree time limit as specified in Time Limit for Completion of Degree. Courses to be taken during this additional term are specified by the Dean. If the student's EGA and Fall/Winter GPA following this term are not both 2.0 or greater, the student will not qualify for a degree and will not be allowed to continue in the Faculty.

v. grading scale/system.

The university uses a four-point letter-grading system for calculating Grade Point Averages (GPA). Grade points reflect judgements of student achievement performance in a class. The instructors mark in terms of raw scores, rank the papers in order of merit, and assign an appropriate grade to each paper.

Descriptor	Letter Grade	Grade Point Value
Excellent	A+	4.0
	A	4.0
	A-	3.7
Good	B+	3.3
	B	3.0
	B-	2.7
Satisfactory	C+	2.3
	C	2.0
	C-	1.7
Poor	D+	1.3
Minimal Pass	D	1
Failure	F	0

b. Note any program specific regulations (e.g., for doctoral programs, note any candidacy or dissertation requirements, examination requirements, time to completion requirements, etc.).

Not applicable.

c. Identify potential opportunities for transfer/laddering into the proposed program from other institutions or other programs within the institution, and for transfer/laddering from the proposed program to other programs within the institution or at other institutions. List any formal agreements for internal or inter-institutional transfer/laddering that have been negotiated to this point.

The Faculty of Engineering at the University of Alberta offers one-year **Engineering Transfer Programs** through the following Alberta and British Columbia post-secondary institutions:

- Northwestern Polytechnic (formally Grande Prairie Regional College)
- Keyano College
- Medicine Hat College
- Red Deer Polytechnic
- University of Lethbridge
- Vancouver Island University
- Northern Lights College
- College of the Rockies

Students in the engineering transfer programs will take equivalent courses to those completed by first year Engineering students at the University of Alberta and will be considered for admission into a second year Engineering at Alberta program based on their first year results and will be considered for program placement on an equal basis with continuing University of Alberta Engineering students.

Transferring from another post-secondary institution:
If there is not an existing transfer agreement in place between the University of Alberta and the other postsecondary institution, each transfer application is reviewed to assess transfer credit (the same application and review process applies in the case of transferring within the University of Alberta and in the case of transferring from other postsecondary institutions).

Admission for students with previous post-secondary experience into the Faculty of Engineering at the University of Alberta will depend on space availability within the faculty. Available seats will be offered on a competitive basis, considering the applicant's most recent fall/winter GPA and the amount of transferable coursework that they have completed. As admission is competitive, the faculty cannot predict how many transfer students will be admitted on a yearly basis or what the cut-off GPA will be; however, students must have at least a 3.0 GPA on 8 or more courses in their most recent fall/winter in order to be considered. Students with previous post-secondary experience, regardless of whether it is several courses, a degree, or a diploma, will likely be assessed as transfer applicants. Transfer applications will be evaluated based on transferable post-secondary coursework.

Transferring from an Engineering Technologist Program:

Students who complete Engineering Technologist Diploma programs can be considered for admission to the Faculty of Engineering at the University of Alberta. Students will be considered for admission to the qualifying year of Engineering where they will be expected to maintain a full course load. Upon the successful completion of the qualifying year, students will then be placed into an Engineering discipline on a competitive basis determined by their course load and GPA.

First Year Engineering in French
While technically not a transfer program, it is possible to take most of the first-year courses in French through the Faculté Saint-Jean at the University of Alberta. Academic conditions and content of the courses are equivalent to their English counterparts.

6. Engaged and Active Learning / Delivery Methods

a. Discuss the pedagogical strategies used in the program, including rationale and resource implications where possible.

The pedagogical approach for educating students in the Mechatronics and Robotics program will undertake a similar approach to the other engineering undergraduate programs at the University of Alberta in the Faculty of Engineering.

In the common first year, students are not only introduced to **foundational technical knowledge** for first-year engineering, but also to the nature of the profession, through courses such as ENGG 100 (Success in Engineering) and ENGG 160 (Introduction to Engineering Design, Communication, and Profession). Technical courses are accompanied by tutorial and/or lab sessions where students have the opportunity to apply the material and explore their understanding of the subject matter.

Courses which focus on design and other professional skills implement **active learning strategies** such as **gamification, blended learning, and team-based learning** in order to support students in developing professional skills such as teamwork, communication, ethics and leadership.

Assessment of student knowledge also varies by course. In more technical courses, students receive formative feedback through regular assignments and summative assessment is typically through a final exam. ENGG 160 uses competency-based grading; this innovative and student-centered form of assessment allows students and teams to receive regular feedback on their work, resubmitting assignments if necessary until a specific level of competency is achieved, and a credit rather than a grade is given. All course summative assessments are also governed by requirements of CEAB to allow accreditation of the program.

Resources for these courses include existing lecture-style theaters that can accommodate large numbers of students along with suitable tutorial and lab rooms. For the majority of courses in the program, no further resources are planned at this point.

One of the unique experiences that a student undertaking an engineering degree will have is the opportunity to express their knowledge through addressing a **design challenge** that will often integrate a multitude of different areas. As described above, the design experience starts in the first common year where the students are introduced to the design process and work in teams to solve an open-ended design problem. This is continued throughout the remainder of the Mechatronics and Robotics program with a design course in the second semesters of the 2nd and 3rd year (MCTR 260 and MCTR 360, respectively). These design challenges will be interactive and hands-on with the students physically building their solutions in some courses. In 2nd year, students will investigate manufacturing techniques while doing component design. In 3rd year, the design-build solution will comprise system design with strong integration of control and software. At the same time, both in 2nd and 3rd year, computer-aided design using industry-standard computer aided design (CAD) tools will also allow students to explore and interact with their solution in the virtual world. Resources for these activities and designated manufacturing spaces are provided to the students to undertake their design and build activities. Design spaces, including different facilities for group meetings, components fabrication and testing of built design solutions, are already available in the Faculty of Engineering. The culmination of the design experience will be a two-term, two course (MCTR 460 & MCTR 461) **capstone design project** where students will interact with a real design problem and a real-world client. While the main focus will not be on building a physical device, the students will get the opportunity to develop a design solution using design theory and the knowledge they have gained throughout their degree in a real-world situation.

b. Describe how engaged, active, and experiential learning will be encouraged.

Throughout the program, labs in a variety of courses provide students an opportunity to engage in active experiential learning. It is through the design theme and design courses that students will have the best opportunity to be engaged in experiential learning. The teamwork, communication and leadership skills they develop in these courses will complement the analytical knowledge gained in other courses in the program. Experiential activities in the 2nd and 3rd year design subjects where the students physically build their design solution include the manufacture of individual components, assembly of components into complete systems, development and testing of the software. The students will also typically compete in a competition at the end of the course where students can experience and evaluate the performance of their design solutions.

The students will also have opportunity in two other areas to be engaged in experiential learning: the Co-op program, and student groups.

Co-operative work experience: After 2nd year, students will complete an 8-month co-op work term, and after 3rd year, they will complete a co-op work term with a duration of 12 months. Following the requirements of CEAB, these work terms will be paid positions that will typically be arranged through the Faculty of Engineering's Co-op Office. This office will also evaluate the position to ensure that it is suitable for the student learning experience and also carry out site visits and evaluate student reports to ensure excellence of the experience.

Student groups: Students can also choose to engage in a large variety of student teams that are hosted within the Faculty of Engineering. These are typically vehicle teams such as the FSAE vehicle project, AlbertaLOOP, Alberta SAT, Heavy Lift Aircraft etc. These are student-founded, student-led teams with a faculty advisor and the student groups are partially funded by the Faculty of Engineering. Students also source funding from industry partners and endowments. The student groups/teams often enter their vehicles in regional or national competitions with student teams from other universities. Students have the opportunity to use the technical knowledge that they are learning in the program to solve a design problem of their choosing in collaboration with an interdisciplinary group of students in a student-led and student-managed context.

Resources for both of these activities are well-established and well-funded through the Faculty of Engineering.

c. Where applicable, demonstrate how CAQC's Additional Quality Assessment Standards for Programs Delivered in Blended, Distributed or Distance Modes will be met (Handbook s. 4.5).

Not applicable.

7. Program Comparison

a. Provide a comparative analysis of the proposed program (curriculum, structure, admission requirements, etc.) with similar programs offered in Alberta or elsewhere (see sample table below). Provide a rationale for which comparator programs were chosen. Illustrate the similarities and differences. Include hyperlinks to comparator programs, if possible.

- Based on information from Engineers Canada, there are five accredited mechatronics-related programs in Canada outside Quebec, and there are three accredited programs in Quebec in "Electromechanical Engineering", "Electromechanical Systems Engineering", and "Robotics". The accredited degree programs are listed below in Table 9.

- As shown on the map of full program locations (see Figure 4 below), there is a void of programs in the Prairie provinces, which have natural resources and agriculture as primary economic drivers.

Table 9: Accredited degree programs in mechatronics in Canada*

Accredited degree	Institution	Accreditation date
Mechatronic Systems	Simon Fraser	2011 – present
	Western Ontario	2014 – present
Mechatronics	McMaster	2009 – present
	Ontario Institute of Technology	2020 – present
	Waterloo	2008 – present
Génie électromécanique	Québec en Abitibi–Témiscamingue	2000 – present
Génie des systémes électromécanique	Québec à Rimouski	1998 – present
Génie robotique	Sherbrooke	2021 – present

* https://engineerscanada.ca/accreditation/accredited-programs
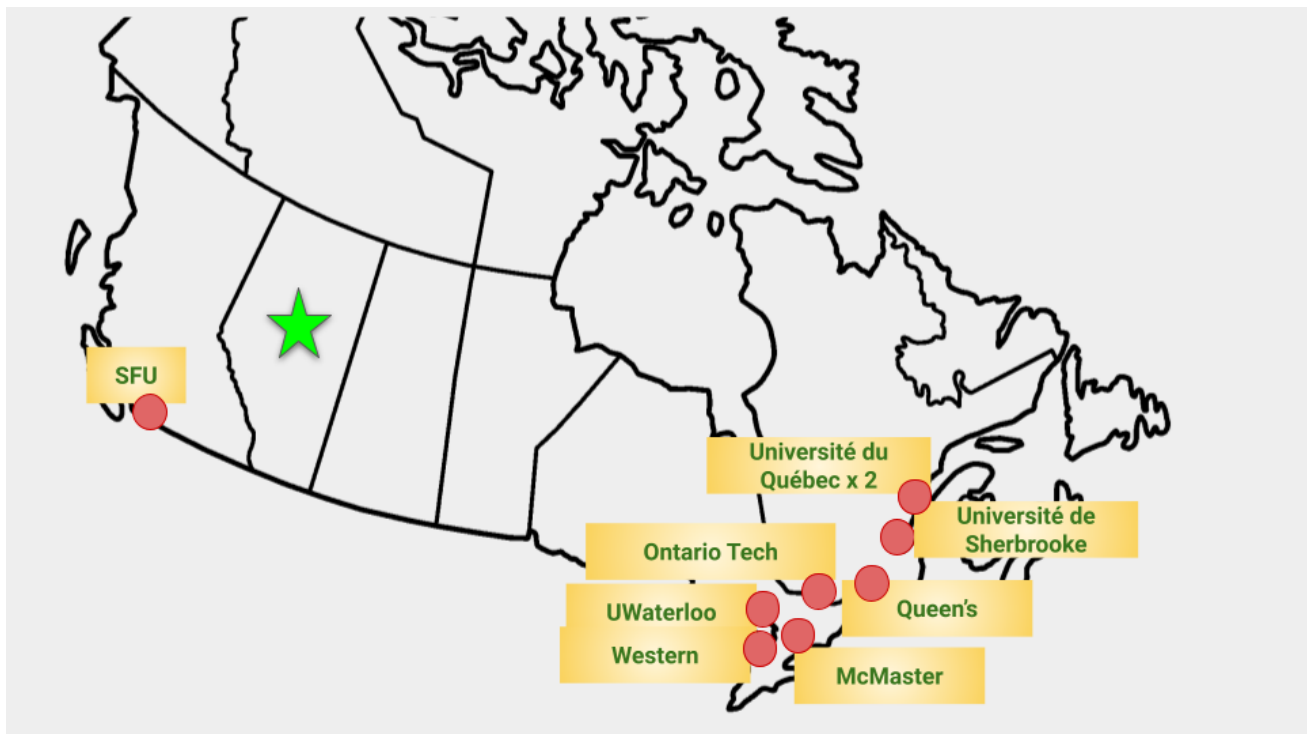
Figure 4. Map of mechatronics programs in Canada (8 accredited programs plus Queen's University)

For the purpose of program comparison, three universities were selected as shown in Table 10. Simon Fraser was selected given its proximity to Alberta and because it is the only Mechatronics Engineering program west of Ontario. Waterloo was selected given its notable reputation and because it is the largest engineering school in the country. Queen's University was selected because it is the newest mechatronics program (students were first admitted to the program in Fall 2021).

Table 10. Program comparison

Program component	University of Alberta (proposed)	Simon Fraser University	University of Waterloo	Queen's University*
Name of credential	Bachelor of Science (BSc) in Mechatronics and Robotics Engineering	Bachelor of Applied Science (BASc) in Mechatronic Systems Engineering	Bachelor of Applied Science (BASc) in Mechatronic Systems Engineering	Bachelor of Science (BSc) in Mechatronics and Robotics Engineering
Program entry	Students make their program selection after completing a qualifying first-year program that is common to all engineering degree programs	Direct entry program (i.e., starting in first year)	Direct entry program (i.e., starting in first year)	Direct entry program (i.e., starting in first year)
Areas of study (options, streams, concentrations)	Students may select from approved technical electives. Suggested electives are provided for five streams: Aerospace; Advanced Manufacturing; Cyber-physical Systems; Intelligent Systems; Biomechatronics	Options: BASc Honours program; Double degree program (Mechatronics Systems Engineering and Business), 5-year flexible degree	None	Students choose one of four concentrations for technical electives in their final year: Automation, Robotics, Biomedical, or Intelligent Systems
Work Integrated Learning	Co-op program 1 x 8-month term + 1 x 12-month term = 20 months total	Co-op program 3 x 4-month terms = 12 months	Co-op program 6 x 4-month terms = 24 months total	None
Number of courses				
Natural Sciences	4	3	1	3
Mathematics	6	6	6	6
Engineering Science (Mechanical)	4	5	6	5
Engineering Science (Electrical)	5	4	6	7
Engineering Science (Computer)	4	2	3	3
Engineering Design	6	6	4	6
Mechatronics, Robotics, & Controls	8	5	5	6
Professional Practice	5	5	8	2
Complementary Studies	3	3	4	3
Technical Electives	4	6	5	8

			21.5 credits (equivalent to 136 UAlberta credits)	*Not available*
Graduation requirements	143 credits	149 credits	21.5 credits (equivalent to 136 UAlberta credits)	*Not available*
Program duration	8 study terms, 5 co-op work terms, 5 years total	8 study terms, 3 co-op work terms, 4 years total	8 study terms, 6 co-op work terms, 5 years total	8 study terms, 0 co-op work terms, 4 years total

*Curriculum development is still in progress.

8. Other Elements Affecting Quality

a. Note any other relevant aspects of the proposed program that might affect quality (e.g., fast-tracking, individual study, parts of the program to be offered in cooperation with another institution, prior learning assessment, transfer agreements (e.g., 2+2 type programs, etc.).

Not applicable.

SECTION B: IMPLEMENTATION AND RESOURCES

1. Program Implementation Plan

a. Provide a program implementation plan by academic year (start to maturity) that includes any elements to be phased in (e.g., new academic staff hires, courses, minors, co-op option). If introduction of this program is dependent on a similar program being phased out, the implementation plan should include how both programs are being supported until the phase out and start up are completed. Confirm that students will be given the option to complete the program in which they are originally registered, within the normal time to degree completion regulations, or to transfer to the new program. If this will not be the case, explain why.

The Faculty of Engineering has experienced teaching staff in ECE and MECE with subject matter expertise in mechatronics (refer to the Staffing Plan section, and refer to Appendix F for the academic CVs of existing faculty members who will teach in the program). The implementation of the Mechatronics and Robotics program is not dependent on any existing program being phased out. A detailed look at student enrolment and cohort progress through the program during the first five years of program implementation is shown below in Table 11.

Students already enrolled in existing ECE and MECE programs will not be able to transfer into the Mechatronics and Robotics program due to the unique arrangement and subject

matter of the program courses. Only students entering first year and then starting in Mechatronics and Robotics in their second year will be eligible to complete the program.

The intention is to develop course-based and thesis-based graduate programs in the future, which would be phased in to allow MECE and ECE graduates to complete a graduate degree in Mechatronics and Robotics.

Table 11. Student Enrolment by Program Implementation Year, Academic Year, Term, and Cohort

	Academic Year 1			Academic Year 2			Academic Year 3			Academic Year 4			Academic Year 5		
Year	**2024**	**2025**	**2025**	**2025**	**2026**	**2026**	**2026**	**2027**	**2027**	**2027**	**2028**	**2028**	**2028**	**2029**	**2029**
Term	Fall	Winter	Spring Summer	Fall	Winter	Spring Summer	Fall	Winter	Spring Summer	Fall	Winter	Spring Summer	Fall	Winter	Spring Summer
Term 1	100	0	0	100	0	0	100	0	0	100	0	0	100	0	0
Term 2	0	100	0	0	100	0	0	100	0	0	100	0	0	100	0
Term 3	0	0	0	100	0	0	100	0	0	100	0	0	100	0	0
Term 4	0	0	0	0	100	0	0	100	0	0	100	0	0	100	0
WKEXP 1	0	0	0	0	0	100	0	0	100	0	0	100	0	0	100
WKEXP 2	0	0	0	0	0	0	100	0	0	100	0	0	100	0	0
Term 5	0	0	0	0	0	0	0	100	0	0	100	0	0	100	0
Term 6	0	0	0	0	0	0	0	0	100	0	0	100	0	0	100
WKEXP 3	0	0	0	0	0	0	0	0	0	100	0	0	100	0	0
WKEXP 4	0	0	0	0	0	0	0	0	0	0	100	0	0	100	0
WKEXP 5	0	0	0	0	0	0	0	0	0	0	0	100	0	0	100
Term 7	0	0	0	0	0	0	0	0	0	0	0	0	100	0	0
Term 8	0	0	0	0	0	0	0	0	0	0	0	0	0	100	0
Academic Students	100	100	0	200	200	0	200	300	100	200	300	100	300	400	100
Work Term Students	0	0	0	0	0	100	100	0	100	200	100	200	200	100	200
Total Students	100	100	0	200	200	100	300	300	200	400	400	300	500	500	300

Legend

First cohort	Second cohort	Third cohort	Fourth cohort

The program implementation plan detailed below includes the number of new hires in each academic year, the number of co-op placements required, the number of students in study terms, and the program implementation steps to be undertaken during the academic year. The ramp up in terms of new instructors hired to teach in the program is based on the net

number of new courses offered in each academic year. Note: TT denotes Tenure-Track academic staff, and ATS denotes Academic Teaching Staff.

Please note that while the Staffing Plan (in the following section) indicates only two new hires, the program as a whole will require hiring an additional 14 instructors (both Tenure Track and ATS). These new instructors will add redundancy in delivering the proposed new courses as each course should have two or more qualified instructors, and will also backfill the existing instructors within ECE and MECE departments who would vacate their current teaching appointments to instruct in Mechatronics and Robotics. The hiring for all positions noted in the implementation plan will adhere to the practices described in the proposed program's EDI Strategy (found in Appendix B).

Program Implementation Plan

Academic year 2022-2023 (Current Year)

Number of new hires: 0 TT ; 0 ATS
Program implementation actions taken during the year:
- Sourcing quotes for lab and seminar equipment
- Finalizing course design
- Establishing Mechatronics Industry Advisory Committee (MIAC)
- Establishing Indigenous Program Advisory Council
- Establishing EDI Program Advisory Committee
- Determining Program Co-Directors and governance procedures

Academic year 2023-2024 (Year 0)

Number of new hires: 0 TT ; 0 ATS
Number of new technician hires: 0
Program implementation actions to be taken during the year:
- Procuring specialized equipment
- Increasing the number of staff in Co-op office
- Training recruiters
- Creating and disseminating promotional materials in consultation with committees established above

Academic year 2024-2025 (Year 1)

Number of new hires: 2 TT ; 0 ATS
Number of new technician hires: 1
Number of students in 1st year: 100
Net new courses taught for the first time: 0
Program implementation actions to be taken during the year:
- Increasing the number of staff in Co-op office
- Training recruiters
- Working with employers to identify net new co-op placements
- Promoting the Mechatronics and Robotics program to first year students prior to discipline selection (May 2025)
- Invite CEAB to conduct a preliminary curriculum review

Academic year 2025-2026 (Year 2)

Number of new hires: 3 TT ; 2 ATS
Number of new technician hires: 1
Number of students in 1st year: 100
Number of students in academic terms 3-4 (2nd year): 100
Net new courses taught for the first time (in academic terms 3-4): 6
First cohort starts 8-month co-op term in Spring
Number of co-op placements needed for 8-month work term: 100
Program implementation actions to be taken during the year:
- Working with employers to identify net new co-op placements
- Creating new functional lab spaces for robotics

Academic year 2026-2027 (Year 3)

Number of new hires: 2 TT ; 1 ATS
Number of new technician hires: 1
Number of students in 1st year: 100
Number of students in academic terms 3-4 (2nd year): 100
Number of co-op placements needed for 8-month work term: 100
Second cohort starts 8-month co-op term in Spring
Number of students in academic terms 5-6: 100
First cohort starts 3rd year courses in Winter term
Net new courses taught for the first time (in academic terms 5-6): 11
Program implementation actions to be taken during the year:
- Working with employers to identify net new co-op placements

Academic year 2027-2028 (Year 4)

Number of new hires: 3 TT ; 1 ATS
Number of new technician hires: 1
Number of students in 1st year: 100
Number of students in academic terms 3-4 (2nd year): 100
Number of co-op placements needed for 8-month work term: 100
Number of students in academic terms 5-6: 100
First cohort starts 12-month co-op term in Fall term
Number of co-op placements needed for 12-month work term: 100
Net new courses taught for the first time: 0
Program implementation actions to be taken during the year:
- Creation of graduate program, both thesis- and course-based
- Exploring adding a traditional program option for Mechatronics and Robotics

Academic year 2028-2029 (Year 5, reaches maturity/steady state)

Number of new hires: 0 TT ; 0 ATS
Number of new technician hires: 0
Number of students in 1st year: 100
Number of students in academic terms 3-4 (2nd year): 100
Number of co-op placements needed for 8-month work term: 100
Number of students in academic terms 5-6: 100
Number of co-op placements needed for 12-month work term: 100
First cohort starts 4th (final) academic year in Fall term
Number of students in academic terms 7-8: 100
Net new courses taught for the first time: 5 core courses + 4-6 technical electives
First CEAB accreditation visit (when first cohort is in Winter Term 8)

2. Staffing Plan

a. Provide a comprehensive staffing plan. Show how the number (headcount and FTE) and qualifications of teaching staff meet CAQC's requirements and the objectives of the program as a whole. If the hiring of additional staff is planned, include the academic staff expertise to be recruited. Provide summary information of current academic staff and new hires who will be teaching in the proposed program in the following format (see sample table below).

As described in the above sections, the first year of the proposed program is a common first year for all students in the Faculty of Engineering and has well-developed support from the Faculties of Science and Arts; therefore, the table below includes only those courses taught within the Faculty of Engineering starting in the 2nd year of the program. Moreover, the implementation of this program does not introduce specialized teaching needs to any of the approved complementary studies electives or Impact of Technology on Society (ITS) electives, so those courses are also excluded from Table 12 below.

Table 12: Courses taught by academic staff including credentials and specialization

Courses	NAME Last, First	Earned credentials and specialization	Professional designation (if applicable)	Academic staff status
TERM 3				
MCTR 202 Electric Circuits for Mechatronics	Karamudi, Rambabu	Ph.D. (Electrical and Computer Engineering)	PEng	Tenure
MCTR 274 Programming with Data Structures and Algorithms for Mechatronics I	NEW HIRE #1	Ph.D. (Computer Engineering)	PEng	
CIV E 270 Mechanics of Deformable Bodies I	Bindiganavile, Vivek (and various professors in Civil)	PhD in Civil Engineering	PEng	Tenure
MCTR 240 Signals and Systems	Tellambura, Chintha	Ph.D. (Electrical Engineering)	PEng	Tenure
TERM 4				

Course	Instructor	Degree	Licence	Appointment
MCTR 260 Mechatronics and Robotics Design I	Nakashima, Benjamin	Ph.D. (Engineering Management)	PEng	ATS (full-time academic teaching staff)
MCTR 265 Computer-Aided Design for Mechatronics	Nobes, David	Ph.D. (Mechanical Engineering)	PEng	Tenure
MEC E 230 Introduction to Thermo-Fluid Sciences	Martin, Andrew	Ph.D. (Mechanical Engineering)	PEng	Tenure
MCTR 210 Digital Logic Design and Microprocessors	Lou, Edmond	Ph.D. (Electrical and Computer Engineering)	PEng	Tenure
ECE 342 Probability for Electrical and Computer Engineers	Jing, Yindi	Ph.D. (Electrical Engineering)	PEng	Tenure
MEC E 250 Engineering Mechanics II	Cheung, Ben	Ph.D. (Mechanical Engineering)	PEng	ATS (full-time academic teaching staff)
ENGG 299 Orientation to Cooperative Education	Staff from the Co-op Office			
TERM 5				
MCTR 320 Feedback Control Systems	Koch, Bob	Ph.D. (Mechanical Engineering)	PEng	Tenure
MCTR 374 Programming with data structures and algorithms for mechatronics II	NEW HIRE #1	Ph.D. (Electrical, Computer or Mechanical Engineering)	PEng	Tenure-Track
MCTR 300 Electronics, Sensors, and Data Analysis	Moez, Kambiz	Ph.D. (Electrical and Computer Engineering)	PEng	Tenure
MCTR 355 Introduction to Systems	Lipsett, Mike	Ph.D. (Mechanical Engineering)	PEng	Tenure

Engineering for Mechatronics				
MCTR 357 Robotic Manipulators	Tavakoli Afshari, Mahdi	Ph.D. (Electrical and Computer Engineering)	PEng	Tenure
MCTR 350 Advanced Dynamics	Tang, Tian	Ph.D. (Theoretical and Applied Mechanics)	PEng	Tenure
TERM 6				
MCTR 360 Mechatronics and Robotics Design II	Nakashima, Benjamin	Ph.D. (Engineering Management)	PEng	ATS (full-time academic teaching staff)
MCTR 365 Computer-Aided Machine Design	Qureshi, Ahmed	Ph.D. (Mechanical Engineering)	PEng	Tenure
ECE 315 Computer Interfacing	Cockburn, Bruce	Ph.D. (Computer Science)	PEng	Tenure
MCTR 332 Actuators, Machines, and Power Electronics	Kish, Gregory	Ph.D. (Electrical Engineering)	PEng	Tenure
MCTR 399 Analytical and Numerical Methods for Mechatronics	NEW HIRE #2	Ph.D. (Electrical, Computer or Mechanical Engineering)	PEng	Tenure-Track
MCTR 370 Machine Learning for Mechatronics	Dick, Scott	Ph.D. (Computer Engineering)	PEng	Tenure
TERM 7				
MCTR 460 Design Project I	Lipsett, Mike or Knudsen, Steven	Ph.D. (Mechanical Engineering) Ph.D. (Electrical Engineering)	PEng PEng	Tenure ATS Full Lecturer
MCTR 420 Modern Control Theory for Mechatronics	Chen, Tongwen	Ph.D. (Electrical Engineering)	PEng	Tenure

ENG M 401 Financial Management for Engineers	Nakashima, Benjamin	Ph.D. (Engineering Management)	PEng	ATS (full-time academic teaching staff)
TERM 8				
MCTR 461 Design Project II	Lipsett, Mike or Knudsen, Steven	Ph.D. (Mechanical Engineering) Ph.D. (Electrical Engineering)	PEng PEng	Tenure ATS Full Lecturer
MCTR 421 Estimation Theory for Mechatronics	Zhao, Qing	Ph.D. (Electrical and Computer Engineering)	PEng	Tenure
ENGG 400 The Practice of the Engineering Profession	Lazaruk, Tyson	Masters of Business	–	ATS Assistant Lecturer, Teaching and Student Support Specialist
MCTR 465 Mobile Robotics	Hashemi, Ehsan	Ph.D. (Mechanical and Mechatronics Engineering)	Will have PEng designation before Fall 2025	Tenure-Track
NEW PROGRAM / TECHNICAL ELECTIVES				
MCTR 467 Design of UAVs	Lynch, Alan	Ph.D. (Electrical and Computer Engineering)	PEng	Tenure
MCTR 469 Numerical Control of Machine Tools	Rouhani, Hossein	Ph.D. (Biotechnology and Bioengineering)	PEng	Tenure
MCTR 481 Mechatronic Welding and Joining	Yakout, Mostafa	Ph.D. (Mechanical Engineering)	Will have PEng designation before Fall 2025	Tenure-Track
MCTR 462 Designing Mechatronics Systems for BioMedicine	Vette, Albert	Ph.D. (Biomedical Engineering)	PEng	Tenure

The intention is to hire a minimum of two new tenure-track academic faculty members to teach in two specific areas of mechatronics and robotics: (1) Object-oriented programming, data structures and algorithms for mechatronics; and (2) Analytical and numerical methods with mechatronics applications. Hiring of new faculty members will follow the practices described in the proposed program's EDI Strategy (found in Appendix B).

New Hire #1 would teach the following two new courses:

- MCTR 274 Introduction to object-oriented programming in C/C++ for mechatronic applications. Introduction to data structures and classes, algorithm analysis and design. Concepts illustrated on a physical mechatronic system.
- MCTR 374 Programming with data structures and algorithms for mechatronics II Advanced topics in object-oriented programming in C/C++for mechatronic applications. Advanced data structures, and algorithm analysis and design. Concepts illustrated using a physical mechatronic system and practical mechatronic applications.

New Hire #2 would teach the following new course:

- MCTR 399 Analytical and Numerical Methods for Mechatronics Analytical and numerical methods with mechatronics applications: Complex numbers, analytic functions, elementary functions, mappings, integrals, series, residues and poles, integral formulas. Statistical tests. Numerical integration and differentiation, solution methods of initial value and boundary value problems, ordinary differential equations, linear regression.

b. Explain the workload expectations for teaching, scholarship, and service of all of the academic staff categories involved in teaching this program.

The workload expectations for teaching, scholarship and service are as follows:

Tenured or Tenure-Track Faculty members in Engineering have a workload expectation of:
   - 40% teaching
   - 40% research (scholarship)
   - 20% service

For Faculty members with exceptional teaching or research programs, or those involved in leadership positions within the Department or the Faculty (Chair, Associate Dean, etc), the workload expectations can be adjusted, but the majority of Faculty members follow this 40/40/20 distribution. The typical teaching load is 3 courses per year:
   - 1-2 core undergraduate courses
   - 0-1 elective courses
   - 1 graduate course

Academic Teaching Staff (full-time) in Engineering have a workload expectation of:
   - 80% teaching
   - 20% service

As with Tenured or Tenure-Track Faculty members, ATS staff may have individual expectations that deviate from this, but the majority of ATS staff follow this 80/20 distribution. The typical teaching load is 6 courses per year:

- ○ 3-4 core undergraduate course
- ○ 1-2 elective courses
- ○ 1-2 graduate courses

Industrial Professors (sessional instructors) typically support a single specialized technical elective or graduate course in the program. They usually have part-time, short term contractual commitments with the Department to deliver a non-core course and have no service or scholarship commitments.

- ○ 1 elective OR 1 graduate course

c. Clearly indicate how many academic staff will be teaching in the program at launch and at maturity.

During program launch, there are no new academic staff required for the program. Year 1 of the program is a common first year for all students with existing capacity to deliver the first-year program to the new cohort of students.

At steady-state (Year 5 of the program), Engineering expects to have recruited 10 net new tenured or tenure-track faculty members, 4 new full-time academic teaching staff, and 2–4 Industrial Professors.

Taking into account the existing 24–26 tenured, tenure track, or academic teaching staff with existing mechatronics and robotics expertise already within Mechanical and Electrical and Computer Engineering, we expect around 40 academic staff members will be teaching within the program.

d. Identify any academic staff who will be teaching in the program who do not meet CAQC's requirements with respect to qualifications of academic staff as noted in s. 4.3.4.3 of the Handbook (normally an acceptable Master's degree or equivalent in the discipline in which the staff member is assigned to teach), and provide the rationale for claiming equivalence.

Not applicable.

e. For graduate programs, provide a detailed plan regarding the academic advising, supervision, and monitoring of graduate students, and state the credentials, graduate teaching experience, master's committee work/supervision, and PhD supervision experience of academic staff. For doctoral programs, a summary table such as the following would be helpful.

Not applicable.

f. Include CVs of academic staff teaching courses that comprise required or elective courses in the specialization. Be sure their permission has been given.

Please refer to Appendix F.

3. Scholarly and Creative Activity

a. Describe what constitutes scholarship and/or creative activity for academic staff teaching in this program. Explain the institution's and if relevant, the faculty's, school's, and/or department's formal policies articulating expectations of scholarly performance for instructors in the proposed program, and how evaluations of this performance are taken into account in overall assessments of instructors' performance.

The Faculty of Engineering recognizes that people are, and will continue to be, our greatest strength. We celebrate creativity, diversity, perseverance, and a co-operative spirit.

While the Faculty Evaluation Committee (FEC) is mandated to evaluate performance on a yearly basis, the Faculty of Engineering values long-term scholarship, success, and development of its academic faculty members. The Faculty of Engineering encourages its academic faculty members to strive for scholarly excellence while maintaining an appropriate balance between teaching, research, and service to the University, the engineering profession, and society. In a similar spirit, the Faculty of Engineering encourages its academic faculty members to strive for an appropriate work-life balance.

As outlined in the **Collective Agreement**, an Academic Faculty member shall be a scholar, active in teaching, in research, and in service. The responsibilities of an Academic Faculty member shall include Teaching, Research and Service as described below. The proportion of Teaching, Research and Service shall be determined by agreement of the Department Chair and Academic Faculty Member for the upcoming year, or as set out in the Academic Faculty member's Letter of Appointment.

Teaching responsibilities include participation in teaching programs, including classroom teaching, supervision of graduate students and personal interactions with and advising students.

Research responsibilities include active participation in research (defined as including the preparation or performance of creative works and reflective inquiry), the dissemination of the results of research by means appropriate to the discipline, and seeking financial support (research funds) for such research from granting agencies or other sources.

Service responsibilities include provision of service to the discipline of the Academic Faculty member; participation in the governance of the University, the Faculty and the Department; and dissemination of knowledge to the general public by making available

the Academic Faculty member's expertise and knowledge of the discipline all of which shall be carried out according to the standards of professional conduct expected of an Academic Faculty member.

The Faculty of Engineering **values teaching** that educates, inspires, challenges, and brings out the best in students. We appreciate a diversity of teaching styles, outcomes, and measures.

The Faculty of Engineering **values research** that is courageous and impactful, expands our knowledge on important frontiers, confronts the greatest global and local challenges, and improves the quality of life for generations to come. We appreciate a diversity of research styles, dissemination venues, and sizes of research programs.

The Faculty of Engineering **values service** that supports the operation of, encourages the evolution and growth of, and builds the local and/or international reputation of, the University, our Faculty, the engineering profession, and society. We appreciate a diversity of avenues of service and encourage paths of passion and ability.

While understanding that teaching, research, and service are required of all academic faculty members, the Faculty recognizes that individual academic faculty members' strengths and efforts will vary amongst these three areas.

Evaluation of Teaching: According to the Collective Agreement, the evaluation of teaching shall be multi-faceted and, in particular, shall not be based primarily on any one method of evaluation. The standards for evaluation of teaching performance shall be broadly based, including course content, course design and performance in the classroom. Such evaluation may take into account information such as reviews of teaching dossiers and other materials provided by the Academic Faculty member; reviews by peers and administrative officials; comprehensive reviews of student commentary; and the frequency distribution of responses to student questionnaires.

b. Describe current and anticipated support for scholarly activities and professional development of academic staff (see CAQC's expectations regarding scholarship, research, and creative activity in s. 3.7.3 of CAQC's Handbook). Highlight some of the existing strengths in scholarship relevant to the program, as well as key challenges.

The Faculty of Engineering and the Departments of Mechanical Engineering and Electrical & Computer Engineering provide resources to academic staff members to support their scholarly activities and professional development.

- Professional expense allowance of $1400 that can be applied towards professional development activities including books, subscriptions, conferences, equipment, membership dues.
- Internal research funding is available through endowments, and the engineering research fund.
- UAlberta Engineering Research Chairs program recognizes and supports researchers running large collaborative research programs.
- Dean's Research Awards program supports undergraduate students involved in research.

- Faculty of Engineering Graduate Research Symposium is a venue for students to present their research contributions.
- Extensive fabrication, characterization, machining facilities at subsidized rates for research.
- Professional development and conference space is available for use for Engineering events (generally at no cost).
- Excellent library facilities are available to support scholarly activities and professional development with online access to journals, technical standards, etc.
- A start-up fund of approximately $100,000 is provided to new academic staff.
- The Faculty of Engineering's Research Exploration Fund (REF) provides support for faculty who are facing challenges in their current research program or are interested in exploring new research areas. The REF Program is a competitive program with the objective of assisting academic staff members of the Faculty of Engineering's with bridge funding to either overcome challenges in their current research program and/or explore areas of research novel to their current research program by providing up to $50,000 over two years. The program aims to support the growth and development of faculty members facing challenges in their research program; foster exploration in novel research areas; and increase the quality, capacity, and relevance of the Faculty of Engineering's research outputs to our communities of practice.
- The Lab Safety Associates Program allocates department funding to individuals who are identified by academic staff to take on a safety leadership role in their research groups.
- Graduate support staff (student advisors and applications assistant) are funded by departments to support the graduate students, i.e., highly qualified personnel, who are supervised by academic staff in order to carry out scholarly activities and research
- New academic staff are provided with $1,800 in computing equipment to support their scholarly activities and professional development.
- The positions of Strategic Support Coordinator and Grant & Technical Communicator are funded by the Departments in order to provide academic staff with technical writing assistance and support in preparing and submitting applications for grants to fund their research activities.
- Teaching Assistant and marker support is provided to academic staff, which enables academic staff to allocate more time to research activities (for example, approximately $1.35 million budgeted for fiscal year 2023 by the Mechanical Engineering Department).
- Departments actively encourage academic and student visitors to the university with the goal of fostering and supporting collaboration.
- To relieve the administrative burden on academic staff who are engaged in research, additional administrative support is provided for leadership positions and a shared assistant across the department is available on an opt-in basis.
- To support academic staff in seeking awards in recognition of their scholarship activities, the Nomination Committee is available to provide strategic advice and resources/support.
- The UAlberta's Technology Transfer Services (TTS) team, part of the Vice-President (Research and Innovation) portfolio, provides university-wide support to help researchers, postdoctoral fellows, staff, and students explore the commercial potential of their discoveries and innovations and to support intellectual property (IP) protection and strategy.

- The Faculty of Engineering has a support system in place for scholarship that enables academic faculty members to pursue research funding to the tune of:
  - $62.5 million in 2019-20
  - $77.8 million in 2020-21
  - $73.2 million in 2021-22

To highlight the strength of the University of Alberta in scholarship related to mechatronics and robotics, the research projects listed below have recently been awarded total funding of close to $12 million dollars: (**Industrial partner in bold**)

- Intelligent Sensors and Electromagnetic Surfaces for Resilient Networking and Communications in 5G Wireless Environments (Lead PI: Dr. Ashwin Iyer; Sponsor: Department of National Defence, Canada)
- Multi-material robotic hybrid additive wire arc manufacturing for energy industry (PI: Dr. Ahmed Qureshi; Sponsor: **Syncrude**, NSERC Alliance)
- Artificial Intelligence Industry and Academic Accelerator (PI: Dr. Edmond Lou; Sponsor: Western Economic Diversification)
- Development of Innovative Methods to Assist Treatment of Scoliosis (PI: Dr. Edmond Lou; Sponsor: Alberta Health Services)
- Advanced Solutions for Efficient Alarm Monitoring and Management of Complex Industrial Facilities (PI: Dr. Tongwen Chen; Sponsor: **Suncor**, Multi-sponsor, NSERC CRD)
- Intelligent Alarm Monitoring and Management of Complex Industrial Facilities (PI: Dr. Tongwen Chen; Sponsor: Multi-sponsor, NSERC Alliance)
- A framework for assessment of impact of exoskeletons on safety and performance of construction workers (PI: Dr. Hossein Rouhani; Sponsor: **EWI Works**, AB Innovation, NSERC)
- Computer-Integrated Ultrasound Guidance and Mechatronics Assistance for Breast Brachytherapy (PI: Dr. Mahdi Tavakoli; Sponsor: NSERC, CIHR)

4. Physical and Technical Infrastructure

a. Describe the facilities, laboratory, and computer equipment (as applicable), and any additional infrastructure available to meet the specialized demands of the program, as well as plans to address any deficiencies in what might be required.

It is important for students to have access to state-of-the-art equipment, technology, and facilities to allow them to gain hands-on experience with the tools and technologies that are currently used in industry, which prepares them to be competitive in the job market, advance the innovation ecosystem, and make an impact in the field.

Teaching facilities that can accommodate each of the cohorts in the Mechatronics and Robotics program include those listed below in Table 13. To facilitate peer learning and collaboration, meeting rooms are available to students for group work, and the 2nd floor of the ECERF building (Electrical and Computer Engineering Research Facility) provides multiple flex rooms as idea generation spaces.

Table 13. Engineering teaching facilities that can accommodate the 100 students in each year of the mechatronics engineering program

Building	Room Number	Number of Seats	Furniture Type	Room Type	Characteristics*
Engineering Teaching and Learning Complex (ETLC)	ETLC E1-003	215	Eclectic seating	Lecture theatre	Camera
Engineering Teaching and Learning Complex (ETLC)	ETLC E1-007	215	Eclectic seating	Lecture theatre	Camera
Engineering Teaching and Learning Complex (ETLC)	ETLC E1-013	215	Eclectic seating	Lecture theatre	Camera
Engineering Teaching and Learning Complex (ETLC)	ETLC E1-017	215	Eclectic seating	Lecture theatre	Camera
Mechanical Engineering (MEC)	MEC 2-1	128	Two-person tables	Classroom	Camera
Mechanical Engineering (MEC)	MEC 2-3	126	Eclectic seating	Classroom	Camera
Natural Resources Engineering Facility (NRE)	NRE 1-001	126	Eclectic seating	Lecture theatre	Camera
Natural Resources Engineering Facility (NRE)	NRE 1-003	126	Eclectic seating	Lecture theatre	Camera
Natural Resources Engineering Facility (NRE)	NRE 2-001	126	Eclectic seating	Lecture theatre	Camera
Natural Resources Engineering Facility (NRE)	NRE 2-003	126	Eclectic seating	Lecture theatre	Camera
Engineering Teaching and Learning Complex (ETLC)	ETLC E2-001	100	Eclectic seating	Lecture theatre	Camera
Engineering Teaching and Learning Complex (ETLC)	ETLC E2-002	100	Eclectic seating	Lecture theatre	Camera
Engineering Teaching and Learning Complex (ETLC)	ETLC E1-001	420	Seating with tablet arms - fixed	Lecture theatre	Camera

*Unless otherwise noted, all classrooms have whiteboards and furniture.

Information Services and Technology (IST) provides technical support for all classroom equipment in the facilities listed above.

Existing facilities, student makerspaces, and labs
There are numerous existing specialized labs for instruction in mechanical, electrical, and computer engineering, as well as makerspaces for student innovation and collaborative activities. The intention is to:

(i) enable the Mechatronics and Robotics program to benefit from the existing specialized lab facilities (e.g., control systems lab) in such a way as to not have a negative impact on any existing programs, and
(ii) develop a new specialized lab for instruction in robotics-related courses.

There is an expectation that $2–3 million in capital equipment expenditures will be required to procure the specialized robotic equipment and infrastructure (both mobile and fixed robots) to meet the instructional needs of the program. This capital expenditure would be covered by the Faculty of Engineering through a combination of allowable ETI allocation, leveraged funds for lab upgrades in MECE and ECE, and endowment funds.

The existing makerspaces and spaces available to facilitate student projects include the ELKO Engineering Garage; the Student Innovation Centre; the Machine Shop; the Electrical Shop; the Innovation, Creativity and Entrepreneurship (ICE) Technology Incubator; nanoFAB; and computer labs.

ELKO Engineering Garage
The ELKO Engineering Garage provides a 6,000 sq. ft. makerspace for student projects and provides tools and equipment for students to engage in 2D fabrication, electronics, plastic fabrication, 3D printing, finishing, textiles, design, metalworking, and woodworking. The ELKO Engineering Garage is a place for hands-on learning, collaboration and physical prototyping and offers training, support and fabrication resources for students to create and build their ideas. It aims to foster learning through exploration and was made possible through the generous financial support of Ernie and Cathie Elko. Table 14 includes a list of the equipment available at the ELKO Engineering Garage.

Table 14. Equipment available for student use at the ELKO Engineering Garage

2D Fabrication:	Design:	Woodworking Equipment:	3D Printing Equipment:
CO2 Laser Cutter	3D Scanner	Bandsaw	Dremel Digilab 3D45
Fiber Laser Cutter	AV Equipment	Drill Press	Desktop FDM Printer
Waterjet Cutter	Microscope	Jig Saw	Stratasys F120
Finishing Equipment:	**Electronics Equipment:**	Power Planer	Industrial FDM
Power Sanders	Electronics Testing Devices	Thickness Planer	Prusa MK3S+
Vented Booth	PCB Mill	CNC Router	Stratasys Fortus 450mc
Metalworking Equipment:	Soldering Iron	Dust Collector	Industrial FDM
CNC Mills	**Textiles:**	Miter Saw	Formlabs Form 3
Drilling-Milling Machine	CNC Fabric Cutter	Table Router	Desktop SLA
Cold Cut Saw	Serger	Domino Joiner	Stratasys J750
Plastic Fabrication Equipment:	Vinyl Cutter	Hand Router	Industrial Polyjet
Injection Molder	Embroidery Machine	Nail & Staple Gun	
Vacuum Former	Sewing Machines	Table Saw	

Student Innovation Centre (SIC)
Designed to accommodate an active interdisciplinary community of student innovators, the Student Innovation Centre (SIC) is a space designed for extracurricular competitions, maker projects, and student-led ventures at every stage, from design planning to

entrepreneurship. The SIC is a 5,000+ sq. ft workspace that is modern, flexible, and inspiring, designed to facilitate collaboration between students as they explore their ideas. The SIC offers bookable project rooms, open seating areas, conferencing capabilities, a growing network of equipment, and free student programming and workshops.

Machine Shop
The Machine Shop located in the Mechanical Engineering building provides equipment for use in student design and capstone projects for activities including welding, sheet metal, grinding, sanding & blasting, drilling, sawing, milling, and more. The equipment and their quantities are listed below.

- CNC milling (quantity: 6)
- CNC turning (4)
- Manual drilling (21)
- Manual milling (12)
- Manual turning (16)
- Milling accessories (4)
- 3D printing (7)
- Material testing (13)
- Non-conventional tools such as EDM, water jet, laser cutter (9)
- Metal saws (15)
- Metrology (32)
- Sheet metal & rods (33)
- Surfacing (51)
- Welding (28)
- Woodworking (18)
- Electronic testing/troubleshooting (1)
- Hand tools

Electrical Shop
The Electrical Shop in the Mechanical Engineering Building provides consultation, design, modification, troubleshooting and repair of scientific apparatus. Electronic circuit design and fabrication services are also available. The Electrical Shop provides an environment for students and researchers to ask questions and learn the safe application and integration of high and low voltage systems into both research and undergraduate labs. Available services include:
- Equipment Repair
- Equipment / experimental setup troubleshooting
- Circuit Design and fabrication involving:
    - Analog circuits: Signal conditioners, amplifiers, and filters
    - Digital circuits: Arduino, Teensy, ESP32, Raspberry Pi
    - Transducer interfaces including: temperature, humidity, pressure, strain, and flow
    - RS232, RS422, RS485, I2C, SPI etc.
    - Schematic capture and printed circuit board design
    - PCB assembly: SMT and Thru-hole
- Programming in Arduino, C / C++, LabVIEW / Real-time FPGA, Python / MicroPython Data Acquisition, Machine and Process Control: LabVIEW/Compact DAQ/RIO, OPTO 22/PAC Control, OPC, Modbus (ASCII/RTU/TCP)

- Custom cabling
- Instrumentation design and fabrication: Heater PID controllers for example
- Equipment purchasing / consultation
- Electronics theory consultation
- Safety consultation

Innovation, Creativity and Entrepreneurship (ICE) Technology Incubator
The Innovation, Creativity and Entrepreneurship (ICE) Technology Incubator is part of the Faculty's experiential learning offerings and integrates with campus makerspaces to provide a dedicated space for students and recent alumni interested in commercializing technology and launching new start-ups and social ventures.

nanoFAB
The nanoFAB is a national, open-access training, service, and collaboration centre, focused on academic and industrial applications in micro- and nanoscale fabrication and characterization. Some technical electives or capstone projects may benefit from access to the nanoFAB facility.

- $84M in specialized equipment and infrastructure, over 200 pieces of equipment in a 25,000 sq ft communal laboratory space
- Complete capabilities for microscopy, spectroscopy, material analysis, lithography, thin-film deposition, and etching
- Advanced materials, microscopy, and spectroscopy analysis suite

Computing resources
There are computer labs available for students (ETLC 2-005, 2-009, MEC 3-3, MEC 3-28, MEC 4-19, ECE labs), plus secure and encrypted high-speed wifi and LAN access, and remote software capabilities (cloud computing resources).

5. Information Services

a. Provide an inventory and analysis of information resources to support the program (using standard library reference guides), plans to deal with any deficiencies, and a description of student access to other information services.

Please refer to Appendix E for the **Library Impact Statement**.

Existing collection strengths
University of Alberta Libraries holds one of the most extensive academic library collections in Canada, with print and electronic collections exceeding 5.8 million titles and over 8.4 million volumes. This includes:

- more than 210,000 scholarly ejournals across disciplines from a wide range of publishers
- over 2.2 million ebooks accessible via a variety of platforms
- over 500 online databases
- over 60,000 items in ERA: Education & Research Archive, UAlberta's institutional repository
- over 60 hosted open access journals
- over 3,800 research data files available in Dataverse
- more than 160,000 digitized books, 67,000 newspaper issues, and 20,000 images and maps related to the Canadian prairies and beyond.

The $20 million collection budget is no longer allocated by department, but is instead administered by a central team. This allows greater flexibility in adding resources to meet changing program needs. The library maintains an e-preferred policy, providing online access to resources for the greatest number of students and faculty at the University of Alberta.

Subject-specific resources
Access is already available for many relevant databases of interest to students and researchers in mechatronics engineering including the following:

- AccessEngineering
- ASME Journals, Conference Proceedings, and Standards
- Compendex
- Derwent Innovations Index
- IEEE Xplore
- IET Digital Library
- Knovel
- O'Reilly Books
- SAE Mobilus
- Science Direct
- Scopus
- SPIE Digital Library
- Synthesis Digital Library of Engineering and Computer Science
- Taylor & Francis eBooks
- Web of Science
- Wiley Online Library

The library provides access to a number of print books and ebooks on topics related to the proposed program, including, but not limited to:

- Numerical methods, probability, statistics, calculus, ODEs, PDEs, complex variables and analysis;
- Statics, mechanics, dynamics;

- Chemistry, material science;
- Circuits, control systems, signals and systems;
- Thermodynamics, fluid dynamics, strength of materials, mechanical engineering design, computer-assisted drafting;
- Engineering design;
- Robotics, modelling, sensors and actuators;
- Computer science and programming

Indigenous resources

Respectful relations with First Nations, Métis, and Inuit peoples are supported through learning opportunities for students and staff including:
- Indigenous Canada - a Massive Open Online Course that explores indigenous histories and contemporary issues.
- 4 Seasons of Reconciliation - a multi-media teaching unit developed for use in postsecondary education that fosters renewed relationships between Indigenous peoples and Canadians.

In addition to these training resources, the library provides access to books, journals, and databases of material related to Indigenous Peoples, worldviews, and knowledge. The library also offers guidance on how to search for information related to Indigenous topics, and a dedicated Subject Librarian to help students and researchers. Some examples of our holdings in this area include:
- Bibliography of Indigenous Peoples in North America,
- Canadian Geographic Indigenous Peoples Atlas of Canada,
- Elements of Indigenous Style, A Guide for Writing By and About Indigenous Peoples,
- Decolonizing Methodologies,
- Gale Primary Sources Indigenous Peoples of North America,
- Informit Indigenous Collection,
- iPortal,
- Sources and Methods in Indigenous Studies.

Student access

Because the majority of our collection is acquired in electronic format, students have access to many library materials online, from the convenience of their classrooms, laboratory spaces, study rooms and homes. We prioritize licenses that allow for multiple concurrent users (often unlimited in number), which ensures the broadest possible access to material for students. Students also have ample access to the print collection and library study spaces as detailed below.

Deficiencies and means to address

Benchmarking against the collections of other institutions with accredited mechatronics programs revealed no deficiencies in our collection. As the University of Alberta Library already supports programs in Computer Science, Computer Engineering, Electrical

Engineering, and Mechanical Engineering, the collection is robust in the areas of interest to this newly-proposed program. Should the program be approved, UAL would consult with the program directors to ensure that any additional resources most relevant to the program are licensed or acquired. As noted above the University of Alberta Libraries does not allocate budgets at the program level, but works to ensure program needs across the university are met.

Additional library services
ILL/document delivery
Through the Interlibrary Loan system students and staff may borrow material that is not available at the University of Alberta Libraries from other libraries worldwide. Request forms may be submitted online. Many of our article databases and World Cat, a global network of library content, are integrated with our Interlibrary Loan request forms allowing for easy submission of requests.

Requested items can be conveniently picked up at a preferred library pick-up location. Items on loan must be signed out when picked up, and due date information can be viewed online through the My Account service. The usual loan period for material requested on interlibrary loan is two weeks. Renewal information is displayed on the Interlibrary Loan green band on the item. Interlibrary Loan items can be returned at any of the University of Alberta Libraries during open hours, and at 24/7 book drops at the Cameron, J. W. Scott and Rutherford Libraries.

There is no charge to the users for these services.

Library hours (including 24-hour spaces)
The Cameron Science and Technology Library service desk is open 76 hours per week during term: Monday to Thursday 0800-2100; Friday 0800-1800; and Saturday and Sunday 1000-1700. The basement and main floor study areas are accessible 24hr a day, with the exception of certain holidays. Cameron Library seats 1650, with 400+ computers. It has 18 group study rooms, two treadmill desks, and a mix of comfortable seating. Cameron is zoned for three levels of noise: silent/no food, quiet, and collaborative. Cameron Library is the home of the Digital Scholarship Centre.

Staffed information services (chat, in-person reference)
Information services in the Science and Technology Library are provided during all hours the service desk is open, 76 hours per week. In addition to in-person and telephone service, staff are available to answer questions via chat or text.

Additionally, subject librarians are available during normal working hours via phone, in-person consultation, and e-mail. The engineering librarian also provides six hours a week of information service during fall and winter terms on site in the Donadeo Innovation Centre for Engineering in order to be more accessible to engineering faculty and students. This service, known as "Librarian in Residence," is available in a consultation room in ICE, and has been running since September 2003.

Professional Librarians

The library provides subject liaisons, professional librarians who specialize in the literature and scholarly communications needs of their subject areas and who provide coordination between academic departments and the Library system. They work with faculty to understand the needs of their assigned departments and to ensure that the Libraries fulfill the information and instruction needs of both the faculty and students in the program. Librarians at the University of Alberta are strongly encouraged to contribute to the profession beyond the University's boundaries. Subject librarians are active in professional associations related to both librarianship and their specific areas of expertise.

Information Literacy Instruction

Instruction in library and research skills is offered to undergraduate students in a number of existing courses. Typically, this instruction addresses broad Information Literacy concepts through the use of subject-specific examples targeted to the course and year of study.

Graduate students and faculty are offered higher level instruction, including in-depth search strategy development and introduction to a larger number of subject-specific databases. Sessions are offered at the departmental level, and are also provided on request to individual research groups, with instruction tailored for the interests of those groups. The library organizes a series of workshops on topics such as Scholarly Communication, Advanced Search Techniques, and Introduction to Metrics designed for graduate students and faculty.

SECTION C: CONSULTATION AND ASSESSMENT

1. Program Evaluation

a. Describe the criteria and methods which will be used to ensure the ongoing quality of the program. Include mechanisms for periodic review using external evaluation. Describe the mechanisms to be used for critically assessing the extent to which the program learning outcomes have been met, and any key performance indicators that the institution wishes to include.

Mechanisms for periodic external evaluation are presently in development. Terms of reference for the following three program advisory committees are in development at this time, and stakeholders have indicated their interest to serve on these committees.

- Mechatronics Industry Advisory Committee (MIAC)

- Indigenous Program Advisory Council
- Equity, Diversity and Inclusion Program Advisory Committee

As this will be an accredited program through the Canadian Engineering Accreditation Board (CEAB), there will be an accreditation requirement for continual evaluation and certification of the program every 6 years. Part of this requirement is a continuous evaluation and improvement strategy that needs to be justified to and approved by CEAB.

2. Consultation / Accreditation or Regulatory Approval

a. If not already included in Part A of the proposal, outline the consultation that has occurred with other institutions, organizations or agencies, including advisory bodies formed by the applicant institution, to assist in program design, implementation, and evaluation. This should include, where appropriate, professional associations, regulatory agencies and/or accrediting bodies, and prospective employers.

> Please refer to Appendix C.

b. If the program is subject to accreditation or approval of a regulatory body, provide a description of the review process, requirements of the body, and timing of the review (if in process). If possible, a chart or table may be useful to outline accreditation or regulatory approval requirements.

Accreditation through the Canadian Engineering Accreditation Board (CEAB):

- The process by which a new engineering program can seek accreditation through the Canadian Engineering Accreditation Board (CEAB) is laid out in Section 4 of the Criteria and Procedures Report (2022 version). As per Section 4.1, "Accreditation of a program is granted only after students have graduated from the program. For new programs, an accreditation visit may be undertaken in the final year of the first graduating class." Generally, new programs receive their accreditation visit in the winter semester so the first cohort is sufficiently along in the final year for the program visitors to appreciate how the program will roll out. The timing means that cohort of students will be mid-flight on capstone projects, but new programs generally provide an update after the semester ended and before the June CEAB meeting (when decisions are made) on how the cohort finished the year. The details on what to submit for this update will be coordinated with the visiting team chair.
- In advance of this, there is a program development advisory procedure offered by the CEAB. The Faculty intends to invite the CEAB to conduct a curriculum assessment of the proposed curriculum to provide us with information about how the developed program meets the criteria for accreditation units (AU).

Accreditation through Co-operative Education and Work-Integrated Learning Canada (CEWIL Canada):

- A minimum of one employee of the Engineering Co-op Office will be a current member of CEWIL as this is a requirement for accreditation. The current Director of the Co-op Office is a member of the Accreditation Council and is therefore very familiar with the

accreditation process and how to meet all the criteria. There has been appropriate consultation with the Co-op Office throughout the program development process.

- Before submitting an application for accreditation, a program must have graduates in order to be eligible for accreditation so the submission of the application will occur after the first cohort has graduated (after Winter term 2029).
- For an application to be recommended for accreditation, the review committee must be satisfied that all required criteria are met. A successful review will result in a program being accredited for a period of six years.

c. If not already covered above, indicate how graduates will meet professional or regulatory expectations.

Graduates of an engineering program accredited by CEAB in Alberta may apply for Engineer-in-Training status through APEGA (the Association of Professional Engineers and Geoscientists of Alberta), which regulates the practices of engineering and geoscience in Alberta on behalf of the Government of Alberta through the Engineering and Geoscience Professions Act.

3. Reports of Independent Academic Experts

a. CAQC views external peer review as fundamental to ensuring the quality of academic programs. In order to strengthen the proposal, before the proposal is finalized, the institution must solicit comprehensive reviews of the proposal from two or more independent academic experts it selects from outside the institution. Terms of reference must be provided to the reviewers (see Appendix G of the CAQC Handbook for sample terms of reference), as well as up-to-date drafts of Part A and Part B of the proposal, and appendices. Please append the full reports of the independent academic experts, the institution's response to the reports, and CVs from the independent academic experts (see Appendix G of the CAQC Handbook for guidelines on the selection and use of Independent Academic Experts).

SECTION D: OTHER

1. Adverse Claims or Allegations

a. Disclose any adverse claims or allegations (and, if possible, identify their provenance) that might affect this application or be of concern to CAQC.

None to disclose.

a. Provide any other supporting documents such as the Graduate Program Handbook, Faculty Handbook, current calendar, or cyclical review of programs policy that would add support to the applicant's case and would help reviewers (provide website links, if available).

The Associate Chair of the Mechanical Engineering Department, David Nobes, has created an online program **Visualizer**. The Visualizer presents the curriculum term-by-term (as shown in Appendix A) and enables the viewer to interact with a visual representation of the courses, their sequence, their prerequisites, and various categories of courses (e.g., math, coding, engineering profession, CAD, etc.). The Visualizer for the proposed Mechatronics and Robotics program is available at the link below:

https://sites.ualberta.ca/~dnobes/Eng_Programs/MecTronE_Visualizer4/index.html

How to use the Visualizer:
- Hover over a course to see its Calendar description pop-up.
- Left-click on a course to draw arrows between that course and its prerequisites and corequisites, as well as the courses it is a prerequisite and corequisite for.
- Right-click on a course to have its Calendar description stay in place.
- Highlight all courses in a category by left-clicking on one of the colored boxes to the right.
- To clear all selections, refresh the page.

Note the Statement of Institutional Integrity
which appears on the separate page below

3. Statement of Institutional Integrity

Please sign the Statement of Institutional Integrity below.

UNIVERSITY OF ALBERTA

Decision X **Discussion** ☐ **Information** ☐

ITEM OBJECTIVE: The governing body is being asked to approve a new microcredential certificate in Computer Game Design. The Faculty of Arts and the Faculty of Science will jointly administer this certificate.

DATE	June 22, 2023
TO	GFC Programs Committee
RESPONSIBLE PORTFOLIO	Faculty of Arts and Faculty of Science

MOTION: THAT the GFC Programs Committee, with delegated authority from General Faculties Council, approve the Microcredential Certificate (non-credit) in Computer Game Design.

EXECUTIVE SUMMARY:

Background: The Faculty of Arts and Faculty of Science have had an embedded Certificate in Computer Game Development for almost two decades which is available to all enrolled undergraduate students. Professors in both Faculties recognised the need to provide opportunities for training and skill development to the broader Alberta community, including those who have already graduated from the university and those who might have thought that university was not for them. To address this demand for skill development, the Faculty of Arts and the Faculty of Science submitted a proposal for a non-credit Certificate in Computer Game Design in response to the [Government of Alberta's 2022 Call for Proposals for the Development of Microcredentials](). In September 2023, the Government approved the proposal and funded the creation of the microcredential.

Consultation: In the drafting of the proposal, faculty members in Science and Arts consulted with Continuing and Professional Education, previously the Faculty of Extension, to ensure our program does not overlap with their programs. In fact, students who complete this certificate would be well positioned to complete other credentials at UAlberta, such as the Certificate in Computer Game Development or a Bachelor of Arts or Science. We consulted a number of external partners during the planning of the certificate, including Digital Alberta and Edmonton Global. Both organisations supported the certificate proposal. We also consulted with members of industry in order to determine if the content of the certificate would meet the needs of the labour market. Furthermore, the structure and content of the certificate was supported by research conducted by Dr Gouglas on games programs from across Canada and the United States, which included surveys and interviews with hundreds of students and professors over the past five years.

GOVERNANCE OUTLINE

Analysis / Discussion: Participants will achieve the learning outcomes of the required skills for an entry-level game designer position, in terms of level design, character design, UI/UX, and user testing. The program will be split into nine 10-hour microcredentials, for a total of 90 hours to achieve the full certificate. Each of the nine microcredentials will be split into two parts: five hours of online, asynchronous learning in the form of pre-recorded lectures and online quizzes, and five hours of in-person, hands-on activities meant to teach the associated practical skills. While the skills are focused on game design, these are the same skills required across digital media industries, allowing for transfer to related fields like mobile application and website design. This certificate can further serve as an entry-point for related programs offered by Continuing and Professional Education, such as the upcoming Unity Developer Certificate from Continuing and Professional Education. We will use assessment in terms of the student's performance on the online quizzes and for the in-person activities, which will primarily be used for student feedback.

There are opportunities for laddering students into and out of this certificate. For High School students, there is an opportunity to use this microcredential as part of a "dual credit" course. Florence Glanfield noted that dual credit course options might be particularly attractive in Indigenous communities which often lack their own resources for advanced high school courses. There is a history of collaboration with a computing science teacher at Strathcona High School, for example, where this could be piloted. For individuals who have never been to university, this certificate could provide an avenue for exploring what post-secondary education could offer, perhaps converting some of those who complete the certificate into full-time university students. Finally, the certificate may also provide a way to reach university graduates, offering them an opportunity to reconnect with the University of Alberta.

Risk: This new proposal for a Certificate in Computer Game Design complements the existing Certificate in Computer Game Development, as they teach related but distinct skills. The existing certificate program is widely recognized by industry, with regular industry involvement at all levels. The widely regarded excellence and history of this existing program ensures that we are well-positioned to introduce this new certificate. We foresee no issues with support given the long-running dedication to this area by the Faculty of Arts and Faculty of Science. There are no overlaps between this credential and those offered in other faculties and units, including Continuing and Professional Education.

Some additional points that need consideration:
- Marketing and communications will need to be very clear so that undergraduate students understand the difference between the credit and the non-credit certificates.
- Clear pathways for enrollment will need to be developed, and Continuing Education and Central have indicated that they are developing a central framework for non-credit credentials.

GOVERNANCE OUTLINE

- Each Faculty would need to consider whether this certificate could be considered for transfer credit for one of their courses.

The content and delivery platform for the certificate will be developed and implemented between April and December 2023, with the first cohort of students being admitted in January 2024.

Supporting Materials:

1. Microcredential Internal Template
2. Application to the Government of Alberta's 2022 Call for Proposals for the Development of Microcredentials
3. Government of Alberta's 2022 Call for Proposals for the Development of Microcredentials
4. Letters of support from the Dean of Science and Interactive Arts Alberta with more letters to come in the final submission.

*See Schedule A for additional items to include if needed.

SCHEDULE A:

Engagement and Routing

Consultation and Stakeholder Participation / Approval Route (parties who have seen the proposal and in what capacity) <*Governance Resources Section Student Participation Protocol*>

*Those who are actively **participating***:

- Dr Matthew Guzdial, Computing Science
- Dr Sean Gouglas, Digital Humanities

*Those who have been **consulted***:

- Scott Nye, Chair, Inflexion Games, 6 July 2023
- Alicia Peters, Executive Director, Digital Alberta, 6 July 2023
- Paisley Churchill, Program Manager, Digital Alberta, 6 July 2023
- Brent Jensen, Edmonton Global, 4 July 2022
- Dr Florence Glanfield, Vice-Provost (Indigenous Programming and Research) (Planned)
- Brian Pardell, Megan Bertagnolli, and Allen Ball from Continuing Education, 23 January 2023

GOVERNANCE OUTLINE

*Those who have been **informed***:
● Dr Rebecca Nagel, Associate Dean (Undergraduate), Faculty of Arts

Approval Route:
● Arts Faculty Council, 18 May 2023 ● Science Faculty Council, 25 May 2023 ● GFC Programs Committee, 22 June 2023

Supplementary Notes / Context:

GOVERNANCE OUTLINE

University of Alberta

Program Approval Template
Non-Credit Certificates and Diplomas

This template is to be used for proposals for non-credit certificates and diplomas offered and administered by a Faculty or Department for professional development or life-long learning.

Faculties and Departments pursuing such program proposals must consult with the Vice-Provost (Programs) on the content and process early in the development stage.

All program proponents must also consult with the Vice-Provost (Indigenous Programming & Research) during the early development stage of a program proposal.

Administrative and Governance Approval: Non-credit certificates and diplomas are reviewed by the Program Support Team (Undergraduate), the appropriate Faculty Council, and GFC Programs Committee.

Section A: Basics		
Credential Type	X Non-Credit Certificate ☐ Non-Credit Diploma	
Certificate/Diploma Name	Certificate in Computer Game Design	
Sponsoring Faculty/Academic Unit	Faculty of Arts; Faculty of Science	
Contact information	Name and Title	Sean Gouglas / Matt Guzdial
	Phone	780-966-8436 / 780-777-5638
	Email	sgouglas@ualberta.ca / guzdial@ualberta.ca
Program description Provide a brief description of the learning outcomes, proposed length of program in hours, delivery format, potential for laddering or transfer, and type of assessment if relevant.	Participants will achieve the learning outcomes of the required skills for an entry-level game designer position, in terms of level design, character design, UI/UX, and user testing. The program will be split into nine 10-hour microcredentials, for a total of 90 hours to achieve the full certificate. Each of the nine microcredentials will be split into two parts: five hours of online, asynchronous learning in the form of pre-recorded lectures and online quizzes, and five hours of in-person, hands-on activities meant to teach the associated practical skills. While the skills are focused on game design, these are the same skills required across digital media industries, allowing for transfer to related fields like mobile application and website design. This certificate can further serve as an entry-point for related programs offered by Continuing and Professional Education, such as the upcoming Unity Developer Certificate. We will use assessment in terms of the student's performance on the online quizzes and for the in-person activities, which will primarily be used for student feedback.	

Section B: Rationale, Implications and Impacts	
Rationale for Introduction of Certificate/Diploma Outline the rationale for the proposed non-credit certificate/diploma. Indicate support in faculty or unit level strategic plans, as well as university strategic plans including For the Public Good and the Strategic Plan for EDI.	The Faculty of Arts and Faculty of Science have had a Certificate in Computer Game Development for almost two decades. This proposed certificate would synergistically complement the existing one, as they teach related but distinct skills. The existing certificate program is widely recognized by industry, with regular industry involvement at all levels. The widely regarded excellence and history of this existing program ensures that we are well-positioned to introduce this new certificate. We foresee no issues with support given the long-running dedication to this area by the Faculty of Arts and Faculty of Science. The microcredential in computer game design will address settler-colonial legacies through a careful examination of the games chosen as instructional examples. Video games frequently reinforce colonial prejudices, especially games where the mechanics and narrative centre on conquest and resource exploitation. This certificate will ensure students are aware of these legacies, providing avenues for creating games that eschew such approaches. Furthermore, the user-experience and user-testing portions of the microcredential will encourage students to consider the diversity of game players, addressing racial, gender, class, and normative ability biases. Curriculum will provide specific instruction on best practices that improve accessibility and mitigate such biases.
Resource Implications Identify the resource implications of the proposed non-credit certificate/diploma. Indicate proposed fees, and a budget which clearly indicates overhead costs including admissions, registration, space, and program administration.	*Classroom Space:* Teaching in the program will be conducted in one classroom on weekends. That classroom is already equipped for games education. As such, we do not anticipate a significant impact on classroom resources. *Expenses and Revenues:*

Development Expenses	For 1 MC	For Certificate
Design & Development	$20,250	$182,250
Multimedia Tutorials in Unity / Unreal	$17,500	$157,500
Instructional Design Support	$3,500	$31,500
Student Engagement Support	$3,500	$31,500
Marketing	$7,500	$67,500
Administrative Support	$3,000	$27,000
Total	**$55,250**	**$497,250**

Delivery Costs (Assumes running all certificate courses once per year)	For 1 MC	For Certificate
Instructor	$5,000	$45,000
Ongoing Student Support	$2,500	$22,500
Ongoing Admin Support	$2,500	$22,500
Ongoing Marketing	$1,000	$9,000
Ongoing Assessment and Improvement	$2,500	$22,500
Course Renewal	$2,500	$22,500
Total Expenses	**$16,000**	**$144,000**
Revenue (Assumes 50 students per year)		
Tuition ($595 per MC)	$29,750	$267,750
Summary		
Revenue	$29,750	$267,750
Expenses	$16,000	$144,000
Central Admin Fee (15%)	$4,463	$40,163
Total	**$9,288**	**$83,588**

Internal Consultation	
Describe consultation and potential impacts on other units of the University, including the Office of the Registrar, University Library, Facilities and Operations, Vice-Provost (Indigenous Programs and Research), the Centre for Teaching and Learning, and the Dean of Students.	We consulted with faculty members in Science and Arts regarding the content of the certificate to ensure it does not conflict with the embedded certificate in computer game development. This proposal is looking to serve a different community of learners and provides a different curriculum. We consulted with Continuing and Professional Education to ensure our program does not overlap with their programs. Furthermore, we have consulted with Brian Pardell on how this certificate could be used as an avenue to pursue other CPE credentials. For example, students who complete this certificate could go on to complete the CPE's Unity Developer Certificate. Students who complete this certificate would be well positioned to complete other credentials at UAlberta, such as the Certificate in Computer Game Development or a Bachelor of Arts or Science.

	With respect to teaching resources, the credentials in the certificate are completely self-contained. As such, there will be no impact on library resources.
External Consultation Describe consultation and potential impacts to external stakeholders including employers and professional associations, regulatory bodies etc.	We consulted a number of external partners during the planning of the certificate, including Digital Alberta and Edmonton Global. Both organisations supported the certificate proposal. We also consulted with members of industry in order to determine if the content of the certificate would meet the needs of the labour market. Furthermore, the structure and content of the certificate was supported by research conducted by Dr Gouglas on games programs from across Canada and the United States, which included surveys and interviews of hundreds of students and professors over the past five years. We discussed the certificate with faculty members at the University of Calgary as we wanted to make sure this certificate did not conflict with their new Masters program in games. We both concluded that it does not. There are no professional or regulatory bodies that oversee computer game design as a professional designation. As such, there is no conflict in that regard with respect to this certificate.

2022 Call for Proposals

Development of Micro-credentials

Overview

As part of its effort to support Alberta's economic recovery and to ensure Albertans gain the education and skills they need for high-demand jobs, the Ministry of Advanced Education is inviting post-secondary institutions to prepare and submit one or more proposals to develop and offer micro-credential programs for the 2022/23 academic year. Through micro-credentials, Alberta's government is working with post-secondary institutions and industry to help learners acquire the skills that employers are looking for and to provide Albertans with opportunities to reskill or upskill to pursue new and emerging career opportunities.

For the purposes of this document, a micro-credential is defined as a short-term certification of assessed learning that complements traditional credentials and recognizes skills and competencies at a more granular level.

Post-secondary institutions interested in submitting proposals should demonstrate alignment with the following guiding principles:
- Micro-credentials are subject to an internal quality assurance process.
- Micro-credentials are designed through collaboration or partnership with relevant industry and employers to align learning outcomes with relevant skills and competencies sought by employers.
- Micro-credentials are stackable and create clear pathways into traditional credentials (certificates, diplomas and degrees).
- Micro-credentials provide detailed, secure, and verifiable information about skills and competencies acquired.
- Delivery of micro-credentials is flexible and accessible to prospective learners.

Criteria

Proposals should be no longer than two pages in length. Programs must meet the following criteria:
- Proposals must align with the key sectors outlined in Alberta's Recovery Plan.
  - Micro-credentials related to the following sectors will be preferred: energy, agriculture and forestry, culture and tourism, technology, aviation, aerospace and logistics, finance and financial technology (fintech).
    - Refer to Alberta's Recovery Plan for more information.
- Proposals must clearly identify a need for talent within Alberta's labour market.
- Proposals must demonstrate how the micro-credential will reskill or upskill learners to perform a specific job (or range of jobs), to improve their employability, and to help address the identified labour market gap.
- Proposals must be developed in collaboration with relevant and specific industry stakeholders.
  - Learning outcomes should include input and design from industry and/or community partners.

- Program proposals must outline learner pathways and transferability.

Preference will be given to proposals that also:
- include work-integrated learning (WIL) components;
- include laddering opportunities between short- and long-term programming;
- demonstrate innovation and distinctiveness (e.g., program design, unique delivery);
- can be delivered by the end of the calendar year; and
- demonstrate inclusivity and accessibility (e.g., different learner types).

Preference will be given to institutions that:
- have shown demonstrable progress in successfully implementing micro-credential programs funded through the initial Call for Proposals (2021/22); or
- have not yet received funding through this initiative.

Timelines

Interested institutions should submit their proposals by email to Warren Singh, Executive Director, Insight, at warren.singh@gov.ab.ca by 4:30 p.m. on July 15, 2022. Proposals received after this date will not be considered.

The ministry expects to complete its review of proposals in August 2022. PSIs will be notified of successful proposals via email in September 2022.

Outcomes

Skilled workers are available to fill specific labour market needs and to support economic recovery.

This program helps to realize Objective 7 of Goal 2 – Develop Skills for Jobs – in the *Alberta 2030: Building Skills for Jobs* strategy, by strengthening the role of post-secondary institutions in the reskilling and upskilling of Alberta's workforce. The program supports implementation of the flagship initiative to ensure institutions are the go-to providers of employer-paid upskilling programs.

The ministry will use the following metrics for ongoing reporting on this initiative:
- The number of students enrolled or participating in the newly developed micro-credentials.
- The number of completers.
- The percentage of completers who gain employment after completing the program.
- The average time taken to complete the program.

UNIVERSITY OF ALBERTA

Certificate in Computer Game Design

Overview

The Certificate in Computer Game Design will increase the talent pool that supplies talented, skilled workers for this growing industry. The certificate consists of nine micro-credentials (MCs) at 10 hours each for a total of 90 hours. There are three micro-credentials each in Level Design, Interactive Experience and Interface Prototyping, and User Testing.

Upon completion of the nine MCs, learners will have 1) an understanding of the principles of game design and 2) practice in developing and implementing those principles using industry-leading game design software. This certificate aligns with the University of Alberta's Certificate in Computer Game Development, which focuses on the project management strategies involved in creating games. This Certificate is proposed jointly by the Faculty of Arts and the Faculty of Science.

Contributing to Alberta's Recovery Plan

The proposed certificate aligns with the Alberta Technology and Innovation Strategy that seeks to increase the breadth and depth of the province's technology and innovation talent pool. The curricular content will be developed with Alberta-based industry experts currently working in the games industry. The certificate will also provide learning outcomes that will foster the creation of new Alberta-based intellectual property.

Alignment with Guiding Principles and Criteria

Internal Quality Assurance Process

Quality assurance will be achieved through our Centre for Teaching and Learning instructional designers and eLearning specialists. Subject matter experts will guide MC development and expert instructors will deliver the MCs. Program approval will follow the University of Alberta's Non-Credit/Micro-Credential governance approval framework.

Alignment with Preferred Key Sectors Outlined in Alberta's Recovery Plan

The proposal aligns with the technology sector, benefitting the over 3000 tech companies operated in Alberta according to InvestAlberta. While this certificate will especially benefit those companies involved in games and digital media, many of these skills are transferable. In particular, the interactive experience, interface prototyping, and user testing MCs will of direct benefit to students in any tech-oriented position.

Alberta's Labour Market Demand and Reskilling or Upskilling of Learners

Computer games contribute $5.5 billion to the Canadian economy. Edmonton hosts 86 separate game studios, with approximately the same number throughout the rest of the province. The need for new workers to fill this growing industry is constant, with Alberta careers, learning, and employment information (ALIS) stating that demand is high for such workers. The curricular content of this certificate will be developed in collaboration with industry experts based in Edmonton, including graduates of UAlberta's games program who currently work in the industry. This collaboration will ensure the MC content matches labour needs of the industry. The certificate creates a pathway for workers in related industries, such as film production and industrial design, to reskill and upskill into better paying game industry jobs. For example, the certificate will provide workers in Quality Assurance positions the opportunity to upskill into Level Design positions and then Producer positions.

Partnership with Relevant and Specific Industry Stakeholders

The new certificate builds on the University of Alberta's long-time relationships with major gaming studios, including Bioware and Inflexion. In addition to this long tradition of collaboration, this certificate is supported by Digital Alberta and Edmonton Global.

Verifiable Information

In 2021, the University of Alberta joined the ARUCC National Network's credential wallet, MyCred™ | MesCertif™, to provide verifiable digital credentials to all learners.

Learner Pathways and Transferability: Short- and Long-Term Programming

The certificate provides three stackable components that build on each other. The three MCs in Level Design build into the three MCs in Interactive Experience and Interface Prototyping which build into the three MCs in User Testing. These

Proposal Contact

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Frederick West
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dean.science@ualberta.ca

specific topics have been identified by industry partners as relevant skills that will prepare students for better jobs in the industry. After completing the certificate, students may wish to expand their educational experience into long-term programming such as the existing games degrees, diplomas, or certificates at the University of Alberta, University of Calgary, University of Lethbridge, or Northern Alberta Institute of Technology.

Innovation and Distinctiveness

The certificate will build on the University of Alberta's expertise in game studies and game design, which includes decades-long collaboration with the gaming industry in Edmonton. The strength and depth of this collaboration is unique to UAlberta and will provide students with direct contact with industry experts throughout in-person components. The online components of the certificate will build on the university's comprehensive experience in online education which is illustrated in comprehensive course offerings through the Massive Online Open Course (MOOCs) program in computing science and the Understanding Video Games course.

Inclusivity and Accessibility

Providing more equitable access to training for those struggling to re/enter the workforce, our Student Engagement Centre will support our MC learners by providing academic resources and opportunities for networking, mentorship, and community engagement. Increased accessibility will be achieved by removing entrance requirements. Academic excellence will be based on merit, not previous records.

Work-Integrated Learning

Students pursuing the certificate may, in consultation with the employer, bring industry projects into the course to prototype or complete.

Reporting Metrics

Administration of the certificate will include ongoing data collection with respect to student enrollments, completion times, and employment status before and after completion. We will conduct exit interviews of students who complete the courses and certificates and gather ongoing employment history from social media sites (such as LinkedIn), in order to track economic outcomes of students.

Learning Outcomes | Skills Attained

- Level Design (MC 1, 2, and 3): Students will develop skills in scenario and gameplay prototyping, design pipelines, tool development, information architecture, and team collaboration.
- Interactive Experience and Interface Prototyping (MC 4, 5, and 6): Students will develop skills in user-centred design, user flow paradigms, interface prototyping, and game feel assessment.
- User Testing (MC 7, 8, and 9): Students will develop skills in conducting user tests and interviews; interpret qualitative and quantitative user data; optimize user experience; and predict, identify, and resolve experience design issues.

Timelines

The online and in-class teaching material for the certificate will be completed on the following schedule: Level Design in December 2022 with student admission in January 2023; Interactive Experience and Interface Prototyping in January 2023 with student admission in February 2023; and User Testing in February 2023 with student admission in March 2023.

Budget Details

Item	Per MC	Certificate
Design & Development		
Multimedia Tutorials in Unity / Unreal		
Instructional Design Support		
Student Engagement Support		
Marketing		
Administrative Support		
Total		

Proposal Contact

Robert Wood
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Frederick West
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March 15, 2023

To whom it may concern,

Re: U of A Micro-credential Certificate in Computer Game Design

It is my pleasure to write this letter in support of the Micro-credential Certificate in Computer Game Design, jointly proposed by the Faculty of Arts and the Faculty of Science at the University of Alberta. This new credential builds on decades of research and teaching conducted by professors and students in both faculties. It will create opportunities for individuals across Alberta to improve their labour market skills, allowing them to participate fully in the province's vibrant video game industry. On behalf of the Faculty of Arts, I fully support this proposal and I commit to its successful implementation.

Sincerely,

Robert Wood, PhD
Dean

Office of the Dean, Faculty of Arts
College of Social Sciences and Humanities
6-5 Humanities Centre, Edmonton AB Canada T6G 2E5

T 780.492.ARTS
F 780.492.7251
www.arts.ualberta.ca

UNIVERSITY OF ALBERTA

May 1, 2023

Re: Arts + Science Micro-credential Certificate (non-credit) in Computer Game Design

To whom it may concern,

I am pleased to express my support of this innovative and collaborative Arts + Science Micro-credential Certificate.

This Certificate is specifically designed for learners who want the key credentials and transferable skills needed by Alberta's growing and dynamic technology sector. As a *non-credit* Certificate, it is available to individuals both within or outside of the University of Alberta and it aligns well with the University's *for credit* Certificate in Computer Game Development. The Certificate is expected to address current and future industry demand for individuals with critical knowledge of the principles of, and practical skills and experience in, game design.

The Certificate in Computer Game Design is an exemplary case of two large and diverse Faculties partnering effectively, and addresses both the spirit and the intent of the Alberta Technology and Innovation Strategy.

Sincerely,

Frederick G. West, PhD
Interim Dean, Faculty of Science

College of Natural and Applied Sciences
Faculty of Science
Office of the Dean

6-189 Centennial Centre for
Interdisciplinary Science (CCIS_
Edmonton, AB, Canada T6G 2E1

info@ualberta.ca
T 780.492.4757 F 780.492.9434
ualberta.ca/science

May 8, 2023

University of Alberta
116 St and 85 Ave
Edmonton AB T6G 2R3   via email: sgouglas@ualberta.ca

Re: Micro-Credential University of Alberta Letter of Support

To whom it may concern,

As CEO of the economic development organization that represents the Edmonton Metropolitan Region, I'd like to express our strong support for the proposed micro credential certificate program in Game Design.

Edmonton Global is the economic development organization representing 14 municipalities that make up the Edmonton region. Our purpose is to radically transform and grow the economy of the region. We're focused on attracting foreign direct investment and quality jobs to Alberta and to helping our local companies grow internationally.

One of the sectors that we are focused on growing in our region is in AI and technology – video game development is a part of that. The global gaming industry is booming, with revenues estimated at $184 billion in 2022, and projected to reach $321 billion by 2026 according to a report by PwC. Artificial intelligence is the next big frontier when it comes to digital media and game development, and we can continue to develop, attract, and retain incredible AI talents thanks to our highly ranked post-secondary institutions, including the University of Alberta.

The Edmonton region has a deep history in video game development with several AAA studios and a vibrant indie developer scene. In fact, we already have more than 85 game development studios across the region – and we hope to attract and grow even more. This program will support efforts to attract and develop a highly skilled talent pool that will support this industry.

Should you require further information, I can be reached at mbruce@edmontonglobal.ca.

Sincerely,

Malcolm Bruce
Chief Executive Officer, Edmonton Global

April 17, 2023

Board of Governors
University of Alberta
Allard Hall
116 St & 85 Ave,
Edmonton, AB T6G 2R3

To Whom It May Concern,

Subject: Support for Certificate in Computer Game Development

Digital Alberta is pleased to endorse the University of Alberta's Certificate in Computer Game Design Microcredential. The skills taught in this program are in high demand from not only the video game industry but across digital media industries such as mobile application and website design. The learning outcomes of these programs meet the required skills for an entry-level game designer position, in terms of level design, character design, UI/UX, and user testing. Micro-credential programs are important for allowing diverse learners to gain new skills and bring unique perspectives to the industry.

We commend Sean Gouglas and his team for the industry engagement undertaken in planning, structuring, and developing the certificate and their ongoing research on the video game sector. We have every confidence in the University of Alberta's decades long-track record of graduating students who are ready to enter industry, either as skilled workers in existing Alberta companies or as entrepreneurs developing new Alberta-based IP.

We look forward to hearing about the success of these programs.

Alecia Peters
Executive Director, Digital Alberta

April 19, 2023

Board of Governors
University of Alberta
Allard Hall
116 St & 85 Ave,
Edmonton, AB T6G 2R3

To Whom It May Concern,

Subject: Support for Certificate in Computer Game Development

Inflexion Games is pleased to support the University of Alberta's Certificate in Computer Game Design Micro-credential. Micro-credentials provide important pathways for individuals of all backgrounds to learn about and transition into the video game sector.

The skills taught in this program will help equip learners for entry-level game designer positions and include important topics for job success such as design, character design, UI/UX, and user testing.

In our view the ongoing industry engagement undertaken in the planning, structuring, and developing of the certificate will ensure the success of this program. We have every confidence in the University of Alberta's ability to launch and execute this program and we look forward to seeing more individuals gain skills in computer game design.

Thank you for your consideration.

Scott Nye,
COO, Inflexion Games

INTERACTIVE
ARTS **ALBERTA**

To Whom It May Concern,

My name is Derek Kwan, and I represent Interactive Arts Alberta, a non-profit dedicated to growing the capacity for game development and games culture in the province. We are deeply committed to all efforts to grow the games industry in Alberta, especially as it relates to independent game development of studios that are owned and operated within our region.

By way of this letter, I would like to express our organization's emphatic support for the University of Alberta's microcredential program related to computer game design. This microcredential will be a valuable tool for aspiring and multidisciplinary game developers who might be looking to either round out their formal education around game development, or to get started in this industry. In short, a soft entry point into game development—in the form of a microcredential—from a renowned institution like the University of Alberta is a welcome offering for our ecosystem.

Two reasons give us confidence for the value of this microcredential program: (1) our previous involvement with the high-quality offerings within the University of Alberta's Certificate in Computer Game Development program; and (2) knowing that the professors involved in leading the Certificate program will also be leading the microcredential program. Consequently, we have no doubt that this program will be one of the leading offerings in the province for computer game development education in Alberta.

We look forward to the launch of the University of Alberta's microcredential in computer game design. Should you need any additional information about our support for this program, please do not hesitate to contact using the information below.

Best regards,

Derek Kwan
President
Interactive Arts Alberta

FINAL ITEM NO. 8

Decision ☒ **Discussion** ☐ **Information** ☐

ITEM OBJECTIVE: The proposal is before the committee for decision on the proposed Executive Certificate in Municipal Leadership by the Alberta School of Business. The proposal has been reviewed by the Program Support Team.

DATE	June 22, 2023
TO	GFC Programs Committee
RESPONSIBLE PORTFOLIO	Faculty of Business

MOTION: THAT the GFC Programs Committee approve, with delegated authority from General Faculties Council, the proposed Executive Certificate in Municipal Leadership Program, to take effect upon approval.

EXECUTIVE SUMMARY:

- The original ECML program was introduced via the Executive Education in the Alberta School of Business almost 20 years ago, and has received a plethora of support from across Alberta, and beyond including Manitoba, Saskatchewan, and Nunavut.
- Consultation with our academic team and stakeholders including local municipalities and past participants have buoyed our efforts to enhance the program and its future offerings by creating a formal micro-credential.
- This certificate will provide a professional development and continuing education opportunity for those working within municipalities across Alberta, and Canada.
- Completion of the certificate will provide participants with an opportunity to continue their lifelong learning journey at the University of Alberta via our MBA or EMBA programs as the elective course requirement comes from existing MBA course options.
- The resulting elevation of professional status will provide municipal leaders with career advancement and professional development not currently available.
- The courses will be offered as both in-person and online delivery via the School of Business, eClass, and existing classroom spaces.

Supporting Materials:

Appendix A: Certificate Overview
Appendix B: ECML Course Details
Appendix C: Budget

*See Schedule A for additional items to include if needed.

GOVERNANCE OUTLINE

ITEM NO. 8

SCHEDULE A:

Engagement and Routing

Consultation and Stakeholder Participation / Approval Route (parties who have seen the proposal and in what capacity) <*Governance Resources Section Student Participation Protocol*>

*Those who are actively **participating***:   • Academic team;   • MBA Office team,   • Executive Education team   • Program Support Team
*Those who have been **consulted***:   Existing and new community consultation processes have and will continue to be used to support this program. These include but are not limited to: • Program Support Team (Undergraduate and Non-Credit)   • Norma Rodenberg and Tom Hidson (Office of the Registrar)   • Florence Glanfield, Vice-Provost (Indigenous Programs and Research)   • Jessica Butts Scott and OCE team   • Academic team (core content Instructors);   • Local municipal contacts;   • Prior program participants;   • Service unit consultations.   Examples of external individuals consulted include Don Iveson (former Mayor, City of Edmonton), Allan Gamble (Mayor of Parkland County), Caroline McAuley (Board Chair Alberta Recycling Management Association and former Mayor of Vermillion), Donavon Young (Deputy Minister for Indigenous Relations).
*Those who have been **informed***:   • Local, provincial and national municipal contacts.
Approval Route: Business Faculty Council – September 3, 2021   Program Support Team – May 4, 2023 (for review)   GFC Programs Committee – June 22, 2023 (for final approval)

GOVERNANCE OUTLINE

UNIVERSITY OF ALBERTA

Program Approval Template
Non-Credit Certificates and Diplomas

This template is to be used for proposals for non-credit certificates and diplomas offered and administered by a Faculty or Department for professional development or life-long learning.

Faculties and Departments pursuing such program proposals must consult with the Vice-Provost (Programs) on the content and process early in the development stage.

All program proponents must also consult with the Vice-Provost (Indigenous Programming & Research) during the early development stage of a program proposal.

Administrative and Governance Approval: Non-credit certificates and diplomas are reviewed by the Program Support Team (Undergraduate), the appropriate Faculty Council, and GFC Programs Committee.

Section A: Basics		
Credential Type	☒ Non-Credit Certificate ☐ Non-Credit Diploma	
Certificate/Diploma Name	Executive Certificate in Municipal Leadership (ECML)	
Sponsoring Faculty/Academic Unit	Alberta School of Business	
Contact information	Name and Title	Dr. Michael Maier - Associate Dean Michelle Berg - Program Advisor
	Phone	780-248-1275 780-492-8527 780-288-0568
	Email	msmaier@ualberta.ca mberg@ualberta.ca
Program description Provide a brief description of the learning outcomes, proposed length of program in hours, delivery format, potential for laddering or transfer, and type of assessment if relevant.	The ECML program empowers municipal leaders by increasing their capacity to lead people, teams, departments and organizations. Program participants form long-lasting networks within municipalities across the province and beyond to learn to lead within the constantly changing municipal landscape. Learning outcomes include: ● support~~supporting~~ organizational change while aligning stakeholders to manage resistance; ● Demonstrate understanding what effective leadership looks like in relation to emotional intelligence, personal values, characteristics and strengths; ● leverage individual characteristics and abilities to balance people, process and results; ● link strategic and financial obligations; ● apply interest-based negotiations and strategies to successfully move through community negotiations;	

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	● align municipal strategy with community needs including environmental, social, Indigenous, and governance aspects; ● create sustainable leadership for self and others. Total hours of study within ECML is 116 hours; over 6 courses. Delivery format will be a hybrid of online delivery (Modules 1, 2, 3, 4), and in-person delivery for the final Module (also an option for MBA elective). The ECML program will include a requirement for the completion of one (1) MBA elective course. The remaining five (5) Modules will not be formally assessed outside of a mandatory Action Learning Project (ALP) to integrate learning within each Module. ● The integrated ALP unites the training concepts in a real-life application model. The ALP offers a tangible method to systematically and effectively apply the learnings from within each module and optimize personal investment in the program. Each participant will be asked to identify an opportunity, challenge, or issue present in their work environment to apply program knowledge, skills, and training to directly. Guidance from each Instructor, in addition to networking within their cohort, will be provided to assist with completion of the journal. Participants will be provided with an opportunity at the end of the program to share their learnings with their cohort to enhance their educational progression. ● ALP opportunities allow participants to identify and address real issues while supporting their learning needs. The approach allows participants to develop knowledge and skills while working on actual organizational challenges. ● ALPs involve an active learning process that is centered on the need to find solutions to real problems. ALPs encourage high potential solutions to be developed as the participants draw upon learnings from the program, and each other, to enhance their solutions. The effort and dedication invested within the ALPs provide real dividends: participants strengthen their leadership capabilities and also offer innovative and powerful new approaches to address complex organizational challenges while working in a group setting.

Section B: Rationale, Implications and Impacts	
Rationale for Introduction of Certificate/Diploma Outline the rationale for the proposed non-credit certificate/diploma. Indicate support in faculty or unit level	**Background:** The original ECML program was introduced via the Executive Education unit almost 20 years ago and has received a plethora of support from across Alberta, and beyond including Manitoba, Saskatchewan, and Nunavut. Consultation with our academic team and stakeholders including local municipalities and past participants have buoyed our efforts to enhance the program and its future offerings.

strategic plans, as well as university strategic plans including For the Public Good and the Strategic Plan for EDI.	**Program Overview:** ● Module 1: Leading & Managing in Municipalities - 21 hours (online) ● Module 2: Leading Self & Others - 14 hours (online) ● Module 3: Change Management - 14 hours (online) ● Module 4: Negotiations and Stakeholder Engagement - 21 hours (online) ● Module 5: Sustainable Leadership Summit - 14 hours (in-person) ● MBA elective course (online or in-person) - 32 hours **Logistics:** The ECML program consists of six (6) courses; five (5) of which are considered core content and one (1) elective selected by each individual participant from a variety of approved MBA elective options (see Appendix A). Course registration, record keeping and graduation procedures will be administered by the U of A Registrar's Office including parchment issuance upon successful certificate completion. Upon program enrollment, participants will have two (2) years to complete all course requirements and proceed to parchment issuance. Extensions may be granted on a case-by-case review format by the Program Advisor and Associate Dean. Prior MBA course work may be granted credit transfer toward ECML completion, in adherence to current U of A and School of Business guidelines. **Audience:** Primarily aimed at professionals working within, or seeking to work within, municipal government as executive level leaders include Chief Administrative Officers, Deputies, Directors, and Supervisors. Audiences may also include those working in alignment with municipal government including law enforcement, emergency services, waste management, and healthcare to broaden collaboration and integrate services within their communities. **Rationale:** The term 'executive certificate' is recommended by stakeholders and participants to elevate the recognition of the program and its content within the University of Alberta as well as the community at large. The School of Business acknowledges that University of Alberta certificates, including non-credit certificates, are recognized as valuable credentials within our communities. Municipalities actively support daily life throughout Alberta and Canada, and this certificate as proposed would attract participants from both urban and rural settings. This would further support the economy, industry, and workers across Alberta as a unique method of educational and career advancement. Providing bridging for education internal to the U of A would further enhance the professional development and lifelong learning endeavors of the University and School of Business.

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Resource Implications Identify the resource implications of the proposed non-credit certificate/diploma. Indicate proposed fees, and a budget which clearly indicates overhead costs including admissions, registration, space, and program administration.	Existing resources will be allocated to the development, delivery and continuous enhancement of this program. The development of this program will require work by School of Business staff: ● Community, professional association, and industry consultation: Program Advisor ● Program development, design, and delivery: Program Advisor ● Program administration: MBA Office staff, Program Advisor, Registrar's Office ● Program development and academic oversight: Dr. Michael Maier, Associate Dean Marketing support: U of A marketing, Online and Continuing Education The fee for the program will be approximately $10,000 which includes tuition for the MBA course. Please see Appendix C which provides the proposed budget based on a cohort of 25 students. We intend to offer multiple cohorts per year.
Internal Consultation Describe consultation and potential impacts on other units of the University, including the Office of the Registrar, University Library, Facilities and Operations, Vice-Provost (Indigenous Programs and Research), the Centre for Teaching and Learning, and the Dean of Students.	- Alberta School of Business Faculty Council - PST (Undergraduate and Non-Credit) - Norma Rodenberg and Tom Hidson (Office of the Registrar) - Florence Glanfield, Vice-Provost (Indigenous Programs and Research) Jessica Butts Scott and OCE team As delivery of the program is primarily off-site or online, there will be minimal impact on existing facilities resources such as the University Library and CTL.
External Consultation Describe consultation and potential impacts to external stakeholders including employers and professional associations, regulatory bodies etc.	Existing and new community consultation processes have and will continue to be used to support this program. These include but are not limited to: ● Academic team (core content Instructors); ● Local municipal contacts; ● Prior program participants; ● Service unit consultations. Examples of external individuals consulted include Don Iveson (former Mayor, City of Edmonton), Allan Gamble (Mayor of Parkland County), Caroline McAuley (Board Chair Alberta Recycling Management Association and former Mayor of Vermillion), Donavon Young (Deputy Minister for Indigenous Relations)

UNIVERSITY OF ALBERTA

Appendix A: Certificate Overview

Program Name: <u>Executive Certificate in Municipal Leadership</u>

Proposed program description:

This certificate will provide a professional development and continuing education opportunity for those working within municipalities across Alberta, and Canada. Completion of the certificate will provide participants with an opportunity to continue their lifelong learning journey at the University of Alberta via our MBA or EMBA programs as the elective course requirement comes from existing MBA course options. The resulting elevation of professional status will provide municipal leaders with career advancement and professional development not currently available.

The courses will be offered as both in-person and online delivery via the School of Business, eClass, and existing classroom spaces. Course registration, record keeping and graduation procedures will be administered by theRegistrar's Office including issuance of parchment upon successful certificate completion.

Audience: Primarily aimed at professionals working within, or seeking to work within, municipal government as executive level leaders include Chief Administrative Officers, Deputies, Directors, and Supervisors. Audiences may also include those working in alignment with municipal government including law enforcement, emergency services, waste management, and healthcare to broaden collaboration and integrate services within their communities.

Program Hours: 116

Assessment: Core content = ALP (completion only, not formally assessed)
                  Elective course = pass/fail format

Course Format: In-person & online course delivery

 Program At A Glance

• 5 required courses PLUS 1 elective course requirement

• May be completed within 1-2 years of part-time study

The ECML program consists of five (5) required courses plus one (1) elective from a pre-approved list of MBA elective options. Each of the courses could be completed as stand-alone continuing and professional education for those working within, or seeking to work within, municipal leadership. Each course is offered individually, but learners who desire a comprehensive skill set may complete all to earn the Non-Credit Certificate. Those electing to enrol in the full program will have a maximum of two (2) to do so from the date of enrollment. Extension requested will be reviewed at the MBA Office level on a case-by-case basis.

UNIVERSITY OF ALBERTA

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Except for the Executive Perspectives on Analytics course, each MBA course contains a component which deals with Indigenous perspectives.

Appendix B: ECML Course Details

Leading & Managing in Municipalities (21 hours): *Exploration will begin with self-identifying aspects of emotional intelligence and how beliefs, values, and principles can impact leadership. Participants will complete an emotional intelligence assessment (EQi) prior to beginning this module to integrate key components into their learning and progress. Strategic thinking will also be explored in this module as a compelling way to explore the future of our municipalities; going deeper than frameworks into the thought processes that allow effective strategy to form. Participants will learn by doing; using individual and group activities to narrow in on municipal challenges shared across the cohort.*

- Learning Outcomes:
    - Explore the fundamental underpinnings of successful organizational leadership;
    - Understand the role of emotional intelligence in effective leadership;
    - Identify areas of emotional intelligence related to transformational leadership as a mechanism for structuring development planning;
    - Define the concept of leadership derailers and create strategies to address derailing behaviours;
    - Understand how all managers and leaders of people can contribute to the effective leadership in their municipalities;
    - Identify and incorporate Indigenous perspectives
    - Explore fundamental concepts of leading in a municipal environment including common practices of leadership such as engaging and motivating staff, creating a culture of accountability, and supporting individual staff and team members to achieve the highest levels of performance.

Leading Self & Others (14 hours): *This Module explores leadership in the 21st century, focusing on self and exploring how and why we interact with others the way we do. Participants will complete a DiSC assessment prior to beginning the module to identify key aspects of their personal leadership style and purpose. The realm of 'others' will be explored to develop skills for handling difficult conversations; starting with where they come from and how we can prepare to become a coach within our municipal environments.*

The DiSC personality test is a questionnaire based assessment of personality traits, behaviours, and interpersonal relationship styles. It is designed to assist with communication, conflict resolution, motivation, and problem solving. The assessment identifies four primary personality aspects; dominance, influence, steadiness, and conscientiousness to enhance teamwork and productivity through introspection. Discprofile.com

- Learning Outcomes:

○ Understand how their own journey has shaped their current day beliefs and understandings of leadership;
○ Develop awareness of their core values, behavioral styles, and purpose to create effective leadership;
○ Identify coaching opportunities with team members;
○ Experience the steps in people reading and plot teams on the DiSC model;
○ Practice giving and receiving feedback to minimize the need for difficult conversations;
○ Identify aspects for engaging, involving and focusing people, influencing others, managing up, setting limits, and establishing boundaries;
○ Demonstrate a practical approach to working with team members using a coaching approach.

Change Management (14 hours): *This module offers the theories of change with practical application to championing and creating change. Participants will be provided with ideas, tools, and resources to assist and support through change, with an emphasis on practical application. This module will first equip participants with change management tools and theory, and then challenge this new change application using a Change Management simulation tool.*

● Learning Outcomes:
○ Respond to and support organizational change;
○ Identify and apply best practice for change management;
○ Demonstrate strategy execution;
○ Manage resistance;
○ Align and engage stakeholders;
○ Understand key realities during times of change to become a good change agent;
○ Support future change within the municipal environment.

Negotiations and Stakeholder Engagement (21 hours): *This module delves into working in the public sector and the unique challenges of meeting the needs of citizens, elected officials, and other levels of government, including land based governments. Participants will have opportunities to discuss and understand how administration can work more effectively with its political and community partners. The principles of 'interest based negotiations' will be explored through interactive case review. The differences between positions and interests will be explored, including how emotions affect communication.*

● Learning Outcomes:
○ Understand the impacts of internal & external environments;
○ Integrate stakeholder analysis, strategies, and mapping;
○ Rights holder engagement and duty to consult;
○ Understand public participation guidelines;

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- Identify key aspects of building and sustaining relationships;
- Identify key aspects of Indigenous community relations;
- Improve communication skills and enhance supportive relationships;
- Practice alternatives within negotiations, including handling difficult situations.

Sustainable Leadership Summit (14 hours): *This module is focused on helping leaders understand better how the context and culture in which they apply their leadership impacts results. It explores concepts such as organizational culture, engagement, and the impact of diversity in the workplace. It also provides mechanisms and processes to sustain the learning gained through the program into the future.*

- Learning Outcomes:
  - Understand how culture is created within an organization;
  - Differentiate between team and organizational culture and determine how one impacts the other;
  - Explore individual EI and the links between personal EI and effective leadership within complex organizational systems;
  - Identify how we reflexively fall into traps that inhibit our ability to integrate across the organization and partner across boundaries (i.e., levels, functions, departments, organizations);
  - Examine how misunderstanding happens across organizational lines;
  - Create a sustainable plan to ensure the continuation of learning beyond the ECML program.

MBA Elective Options (minimum of one course must be completed as a pass/fail outcome to achieve the ECML credential):
- SEM 643 - Strategic Management in the Public Sector
  - Strategic management in the public sector comprises defining public value, building consensus and support, making decisions, deploying organizational capacity to implement, and managing performance to achieve the desired mission and goals. Addresses the unique complexities, ambiguities and messiness of strategic management in the public sector.
- SEM 644 - Public Sector Leadership
  - Nearly all research on leadership has focused on the private sector. This course will concentrate on the unique features of leadership in the public and non-profit sectors. The course will examine the senior management structures in the different orders of government but the focus will be transformative leadership in areas of current policy interest including examples from environment, health, education, and social services.
- SEM 640 - Public Policy
  - Examines how public policy is implemented in organizations. Topic areas will include: using new knowledge to develop policy; influencing policy; and the role of managers in effectively implementing policy. There will be a strong focus on how public sector managers can effectively design and implement change

strategies that take into consideration the organizational structure, systems, leadership, culture and politics. Combines classroom discussion of theoretical concepts with practical application in organizational settings.

- SEM 502 – Organizational Strategy
  - The first part of this course examines the formation of business strategy. It recognizes the complexities and messiness of strategy formation and explores how organizations actually develop strategies. The second part examines the evolution, determinants, and relevance of alternative ways of organizing. Contemporary ideas (e.g. re-engineering, the learning organization, virtual organizations) are critically reviewed.
- BUEC 678 - Managing Business-Government Relations
  - The role of business in the public policy process: How business organizations influence public policy and its administration, and how public policies affect business. Processes of change are of particular interest. Attention is placed on the motivation, behavior patterns, and the dynamics of the interaction of different stakeholder groups, policy makers, and managers responsible for the implementation of public policies. Develops a framework for analysis of the effectiveness and efficiency of different fiscal, regulatory, and promotional policies; consideration is given to the impact of technological, economic, and social change on policy choice in the long run.
- SEM 638 - Corporate Sustainability
  - This course examines business strategies for sustainable development. Business sustainability is defined as managing the triple bottom line - designing mission driven enterprises that provide a thriving future for business, society and the planet. To achieve this, managers must adopt a fresh understanding of the role of the business enterprise. The course will draw from successful sustainability efforts of leading business organizations, both locally and internationally, by identifying key success factors that encourage sustainable business practices. It will also place current understandings of sustainability in a wider context by exploring the historical roots of current sustainability practices and examining their implications for key stakeholders of the business enterprise.

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Appendix C: Proposed Budget (Per Cohort of 25 students)

Projected Program Revenue (5 Modules at $7500 + MBA course tuition $2462)	$249,050.00
15% University Overhead	$37,357.50
Program Revenue to School	**$211,692.50**
Program Supplies & Services incl. Instructional fees & Catering, rental, marketing etc.	$103,125.00
Indirect School of Business Overhead (Staff and admin costs)	$26,000.00
Program Instructor Travel	$2,000.00
Program Expenditure	**$131,125.00**
Net Cohort Revenue	**$80,567.50**

FINAL ITEM NO. 9

Decision ☒ **Discussion** ☐ **Information** ☐

ITEM OBJECTIVE: This proposal is before the Committee to request approval for the proposed allocation of the 20 novel seats in the MD Program towards the existing Rural Applicant seats for the 2024 intake year, for a total of 30 protected rural seats.

DATE	June 22, 2023
TO	GFC Programs Committee
RESPONSIBLE PORTFOLIO	Provost and Vice-President (Academic)

MOTION: THAT the GFC Programs Committee approve, with delegated authority from General Faculties Council, the attached proposal to allocate the 20 novel MD Program seats to qualified Rural applicants for the upcoming Admissions cycle opening July 1, 2023 (Class of 2028), as proposed by the Faculty of Medicine & Dentistry and set forth in Attachment 1.

EXECUTIVE SUMMARY:

Background

On March 13, 2023, the Provincial Government announced that nearly $200 million would be invested to expand health care training programs in the province in order to train additional health care professionals to increase the health care workforce and meet the needs of Albertans. The Government's announcement included information regarding multiple initiatives related to this expansion. One of these initiatives is a planned increase in the number of seats in the MD Programs at the University of Alberta and the University of Calgary. As per the government announcement, the number of seats at the University of Alberta MD Program will be increasing by the number of 10 for the intake in September 2023, 20 for intake in September 2024, and 30 for September 2025.

The stated intention of this increase in seats in Alberta's MD Programs is to increase the physician workforce in the province, and the intention to increase the number of physicians practicing in rural locations in the province is specifically named. There is a related initiative to expand the ability to train doctors in regional centres and rural communities.

As a result of the Admissions cycle for the Fall 2023 intake having already been in progress at the time of the announcement, no changes to process for the additional 10 seats have been be made.

The University of Alberta MD Program provides up to 10 protected seats in each application cycle for qualified applicants from rural backgrounds (see the attached University of Alberta Calendar excerpt with proposed change). **In response to this government initiative, the University of**

GOVERNANCE OUTLINE

ITEM NO. 9

Alberta MD Program wishes to allocate the 20 novel seats for the 2024 intake year to protected rural seats, for a total of 30 seats protected for rural applicants.

The University of Alberta MD Program has a well-established and effective process for admitting rural applicants to our program. From our data, we know that these applicants are more likely than other applicant groups to choose rural locations of practice upon their completion of training. We would like to use our existing Admissions process to recruit and admit a higher number of rural applicants for this single intake cycle, in support of this government initiative. Candidates for the 2024 intake will be selected through the MD Program's existing rural recruitment process.

The MD Admissions Committee at the Faculty of Medicine & Dentistry has approved this change for the Admissions cycle beginning July 1, 2023. This proposal has been approved by the Faculty of Medicine & Dentistry's Faculty Council on May 23, 2023.

Risk Discussion / Mitigation of the Risk

This change would impose no hardship for other applicant groups, as the number of seats available to non-rural applicants to the MD Program would not change.

Next Steps

Please note that this Calendar change request is for an amendment to be applied to the current Calendar only (2023-2024). The University of Alberta MD Program plans to create a new dedicated Rural Admissions Stream in time for the September 2025 intake. Updated Calendar language will be considered once this new admissions stream has been created.

Supporting Materials:
1. Calendar Change Request Form – MD Program Rural Seats

*See Schedule A for additional items to include if needed.

GOVERNANCE OUTLINE

SCHEDULE A:

Engagement and Routing

Consultation and Stakeholder Participation / Approval Route (parties who have seen the proposal and in what capacity) <*Governance Resources Section Student Participation Protocol*>

*Those who are actively **participating***:   • Dr. Laura Stovel, Assistant Dean, Admissions, MD Program   • MD Admissions Committee – Approved Proposal, May 1, 2023
*Those who have been **consulted***:   • Undergraduate Program Support Team (UPST) – May 4, 2023

Approval Route:
     Faculty of Medicine & Dentistry Faculty Council Committee – Approved Proposal, May 23, 2023
     GFC Programs Committee – June 22, 2023

Supplementary Notes / Context*:*

Calendar Change Request Form
for Program and Regulation Changes
See the Calendar Guide for tips on how to complete this form.

UNIVERSITY OF ALBERTA

Faculty (& Department or Academic Unit):	Faculty of Medicine and Dentistry
Contact Person:	Dr. Laura Stovel, Assistant Dean MD Admissions
Level of change: (choose one only)	• Undergraduate X
	• Graduate
Type of change request: (check all that apply)	• Program
	• Regulation X
For which term is this intended to take effect?	July 2023 (Academic Year 2023-2024)
Does this proposal have corresponding course changes? (Should be submitted at the same time)	No.

Rationale
Things to consider (maximum 500 words): Why is this being changed; How will it benefit students/department/unit; How is this comparable to similar programs (internal or external); Historical context; Impacts to administration or program structure; Consultation with stakeholders

On March 13, 2023, the Provincial Government announced that, with Budget 2023, nearly $200 million would be invested to expand health care programs in the province in order to train additional health care professionals to meet the health care needs of Albertans. The Government's announcement included information regarding multiple initiatives related to this expansion (see attached document). One of these initiatives is a planned increase in the number of seats in the MD Programs at the University of Alberta and the University of Calgary. As per the governmental announcement, the number of seats at the University of Alberta MD Program will be increasing by the number of 10 for the intake in September 2023, 20 for intake in September 2024, and 30 for September 2025.

The stated intention of this increase in seats in Alberta's MD Programs is to increase the physician workforce in the province. The intention to increase the number of physicians practicing in rural locations in the province is specifically named. There is a related initiative to expand the ability to train doctors in regional centres and rural communities.

Presently, the University of Alberta MD Program provides up to 10 protected seats in each application cycle for qualified applicants from rural backgrounds (see the University of Alberta Calendar excerpt below). **In response to this governmental initiative, the University of Alberta MD Program wishes to allocate the 20 novel seats for the 2024 intake year to protected rural seats, for a total of 30 seats protected for rural applicants.**

At the University of Alberta MD Program, we have a well-established and effective process for admitting rural applicants to our program. From our data, we know that these applicants are more likely than other applicant groups to choose rural locations of practice upon their completion of training. We would like to use our existing Admissions process to recruit and admit a higher number of rural applicants for this single intake cycle, in support of this governmental initiative.

The MD Admissions Committee at the Faculty of Medicine and Dentistry has approved this change for this Admissions cycle. This proposal will go to the Faculty of Medicine and Dentistry's Faculty Council on May 23, 2023 for consideration.

This change would impose no hardship for other applicant groups, as the number of seats available to non-rural applicants to the MD Program would not change.

Calendar Copy

URL in current Calendar (or "New page")	
Current Copy: <mark>~~Removed language~~</mark>	**Proposed Copy:** <mark>New language</mark>
Rural Applicants The Faculty of Medicine and Dentistry may provide up to <mark>ten</mark> positions within quota for the MD program to qualified Rural applicants over and above the Rural applicants who were admitted in the regular process. Candidates will meet normal minimum admission requirements as outlined in <u>Doctor of Medicine (MD)</u> and the approval by the Faculty of Medicine and Dentistry Admissions Committee.	**Rural Applicants** The Faculty of Medicine and Dentistry may provide up to <mark>thirty</mark> positions within quota for the MD program to qualified Rural applicants over and above the Rural applicants who were admitted in the regular process. Candidates will meet normal minimum admission requirements as outlined in <u>Doctor of Medicine (MD)</u> and the approval by the Faculty of Medicine and Dentistry Admissions Committee.

Reviewed/Approved by:

REQUIRED: Faculty Council (or delegate) and approval date.
OPTIONAL: Other internal faculty approving bodies, consultation groups, or departments, and approval dates.