

The following Motions and Documents were considered by the Board Learning, Research and Student Experience Committee during the Open Session of its September 29, 2023 meeting:

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

APPROVED MOTION: THAT the Board Learning, Research and Student Experience Committee, on the recommendation of the General Faculties Council Academic Planning Committee, and acting with delegated authority of the Board of Governors, approves the proposed Bachelor of Science in Mechatronics and Robotics Engineering Cooperative Program for implementation upon final approval.

Final Recommended Item: 7c.

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Agenda Title: **Amended Investment Management Agreement 2024 and 2025**

APPROVED MOTION: THAT the Board Learning, Research and Student Experience Committee (BLRSEC) recommend that the Board of Governors approve the amended 2022-23, 2023-24 and 2024-25 Investment Management Agreement domestic enrolment targets and thresholds as presented in Table 2.

Final Recommended Item: 7d.

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

<b>DATE</b>	September 29, 2023
<b>TO</b>	Board Learning, Research and Student Experience Committee
<b>RESPONSIBLE PORTFOLIO</b>	Office of the Provost and Vice-President (Academic)

**MOTION:** THAT the Board Learning, Research and Student Experience Committee, on the recommendation of the General Faculties Council Academic Planning Committee, and acting with delegated authority of the Board of Governors, approves the proposed Bachelor of Science in Mechatronics and Robotics Engineering Cooperative Program for implementation upon final approval.

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## **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.

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## **GOVERNANCE OUTLINE**



**ITEM NO. 7c**

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 2<sup>nd</sup> 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
- 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:**

**Reviewed**d 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, DATE
- Board Learning Research and Student Experience Committee, September 29, 2023

**Supplementary Notes / Context:**

Additional information was provided to APC, including additional program information, Indigenization and EDI strategies, consultation overview, letters of support and a library impact statement. If you are interested, you can find these materials via [this link](#).

**ITEM NO. 7d**

 Decision  Discussion  Information 

**ITEM OBJECTIVE:** Obtain Board of Governors approval of the amended Fiscal Year 2022-23, 2023-24 and 2024-25 Investment Management Agreement domestic enrolment targets, thresholds and weightings.

<b>DATE</b>	September 29, 2023
<b>TO</b>	Board Learning, Research and Student Experience Committee
<b>RESPONSIBLE PORTFOLIO</b>	Provost and Vice-President (Academic) Vice-President (University Services and Finance)

**MOTION:** That the Board Learning, Research and Student Experience Committee (BLRSEC) recommend that the Board of Governors approve the amended 2022-23, 2023-24 and 2024-25 Investment Management Agreement domestic enrolment targets and thresholds as presented in Table 2.

**EXECUTIVE SUMMARY:** The Government of Alberta (the Government) requested that the 2023-24 and 2024-25 Investment Management Agreement (IMA) targets be submitted informally before April 30, 2023. The IMA metrics were presented and recommended by BFPC on May 30, 2023, and the Board of Governors approved the submission on June 16, 2023.

Subsequent to this, the Government requested changes to university's domestic enrolment targets and thresholds for 2022-23, 2023-24 and 2024-25. Specifically, the Government requested the university increase its domestic enrolment target and its tolerance threshold, i.e. the degree to which the actual can vary from the target.

The amended target for 2022-23, shown in table 2, is based on the 2021-22 actual plus the approved enrolment growth for 2022-23. Similarly, targets for 2023-24 and 2024-25 are based on IMA targets set for the previous year plus the approved enrolment growth funding targets for each year. The 2022-23 target increased from 30,704 to 33,554. The 2023-24 target increased from 31,324 to 34,174, and the 2024-25 target increased from 31,919 to 34,769. In all years, the tolerance threshold was increased from 2% to 8%.

**Table 1: Original Submission.**

Provider	2021-22 Actual	*2022-23 Target	2023-24 Target	2024-25 Target
University of Alberta	32,886	30,704	31,324	31,919
	Tolerance Threshold	921	2%	2%
	Metric Weighting	8%	10%	16%

\*2022-23 actual numbers are not yet finalized and signed off by the GoA, and will appear in next year's IMA.

**ITEM NO. 7d**
**Table 2: Amended Submission. - for approval**

Provider	2021-22 Actual	2022-23 Target	2023-24 Target	2024-25 Target
University of Alberta	32,886	33,554	34,174	34,769
	Tolerance Threshold	2,684	8%	8%
	Metric Weighting	8%	10%	16%

Risk Discussion / Mitigation of the Risk

With up to 25% of the operating and program support grant at risk in fiscal year 2023-24 and 40% of grant at risk in fiscal year 2024-25, it is imperative that the funding metric targets set are achievable. To mitigate this risk, targets have been set taking into account historical achievement and current trends.

For reference, the new submission, including both the revised domestic enrolment submission and the previously approved and unchanged metrics is attached (attachment 1).

**Supporting Materials:**

1. Investment Management Agreements (IMAs) Government of Alberta template (6 pages)

## Funding Metric Worksheet

### FUNDING PERFORMANCE METRIC

#### Proportion of In-Scope Approved Programs with a Work Integrated Learning (WIL) Opportunity by School Year1

Source: 2021-22 and 2022-25 Signed IMA.

The University of Alberta supports the GOA goal to have 100% of programs with WIL and are proud of our accomplishments in support of that goal.

We have increased our target from 89% to 95% in recognition of the fact that we are currently working with AE to make adjustments to our PAPRS data, which may impact the WIL calculation.

Once PAPRS is adjusted we can revisit this target.

Provider	2020-21 Actual	2021-22 Target	2021-22 Actual	2022-23 Target2	2023-24 Target3	2024-25 Target4
University of Alberta	62%	78%	99%	89%	95%	95%
		<b>Tolerance Threshold</b>	4%	5%	7%	7%
		<b>Metric Weighting5</b>	5%	4%	9%	9%

**Notes:**

- 1 In-scope programs exclude: open studies, second language learning, academic upgrading, adult basic education.
- 2 Actuals to be validated against PAPRS data as of July 1, 2023.
- 3 2023-24 target should be equal to or greater than the 2022-23 target plus the 2023-24 tolerance threshold, but not required.
- 4 2024-25 target should be equal to or greater than the 2023-24 target plus the 2024-25 tolerance threshold, but not required.
- 5 Metric weighting is the percent of at-risk funding tied to this metric. Total at-risk funding is 5% in 2021-22, 15% in 2022-23, 25% in 2023-24, 40% in 2024-25.
- 6 All metric weightings add up to 15% for 2022-23. Minimum: 2%, Maximum: 8% for any one metric.
- 7 All metric weightings add up to 25% for 2023-24. Minimum: 3%, Maximum: 13% for any one metric.
- 8 All metric weightings add up to 40% for 2024-25. Minimum: 5%, Maximum: 22% for any one metric.

# Funding Metric Worksheet

## FUNDING PERFORMANCE METRIC

### FLE Enrolment for "Domestic" learners, excluding apprenticeship, by School Year1

Source: LERS Cubes (filtered on select Legal Status - see notes and excluding "Journeyman" Program Type)

We have set our targets to reflect TEE growth over and above the 2021-22 actual domestic FLE.  
As context, across Alberta, our colleagues have seen the domestic market softening.

Provider	2018-19 Actual	2019-20 Actual	2020-21 Actual	2021-22 Estimate	2021-22 Actual	2022-23 Target2	2023-24 Target3	2024-25 Target4		
University of Alberta	28,769	29,112	31,029	31,970	32,886	33,554	34,174	34,769		
							Tolerance Threshold	2,684	8%	8%
							Metric Weighting5	8% 6	10% 7	16% 8

**Notes:**

- 1 International Learners are Non-Canadian learners attending an approved program within Alberta, and therefore require a visa to attend.
- 2 Actuals to be validated against data in LERS in summer 2023.
- 3 2023-24 target should be equal to or greater than the 2022-23 target plus the 2023-24 tolerance threshold, **but not required**.
- 4 2024-25 target should be equal to or greater than the 2023-24 target plus the 2024-25 tolerance threshold, **but not required**.
- 5 Metric weighting is the percent of at-risk funding tied to this metric. Total at-risk funding is 5% in 2021-22, 15% in 2022-23, 25% in 2023-24, 40% in 2024-25.
- 6 All metric weightings add up to 15% for 2022-23. Minimum: 2%, Maximum: 8% for any one metric.
- 7 All metric weightings add up to 25% for 2023-24. Minimum: 3%, Maximum: 13% for any one metric.
- 8 All metric weightings add up to 40% for 2024-25. Minimum: 5%, Maximum: 22% for any one metric.



## FUNDING PERFORMANCE METRIC

### Proportion of Employed Graduates in Jobs Related to their Programs<sup>1</sup>

Source: Graduate Outcome Survey

U of A graduates continue to excel in the labour market.

Given the unpredictability of the employment market, and our lack of direct control over it, we are suggesting a steady state target.

Provider	2018 Actual	2020 Actual	2022 Target	2022 Actual <sup>2</sup>	2024 Target <sup>3</sup>	
University of Alberta	95%	97%	95%	95%	95%	
			<b>Tolerance Threshold</b>	8%	8%	10%
			<b>Metric Weighting<sup>4</sup></b>	3%	N/A	5%

Notes:

- Proportion of domestic graduates from approved programs who state their current job is very or somewhat related to the general skills and abilities acquired by program two years after graduating.
- Actuals were provided to PSIs in January 2023.
- 2024 target should be equal to or greater than the 2022 target plus the 2024 tolerance threshold, but not required.
- Metric weighting is the percent of at-risk funding tied to this metric. Total at-risk funding is 5% in 2021-22, 15% in 2022-23, 25% in 2023-24, 40% in 2024-25.
- All metric weightings add up to 15% for 2022-23. Minimum: 2%, Maximum: 8% for any one metric.
- All metric weightings add up to 40% for 2024-25. Minimum: 5%, Maximum: 22% for any one metric.

## FUNDING PERFORMANCE METRIC

### Administration Expense Ratio<sup>1</sup>

Source: FIR reporting from Data Collection and Reporting System

The U of A runs an administratively lean organization and is targeting to maintain its administrative expense ratio.

Provider	2020-21 Actual	2021-22 Actual	2022-23 Estimate <sup>2</sup>	2023-24 Target <sup>3</sup>	2024-25 Target <sup>4</sup>
University of Alberta	6%	6%	TBD	6%	6%
			<b>Tolerance Threshold</b>	2%	2%
			<b>Metric Weighting<sup>5</sup></b>	3% <sup>6</sup>	5% <sup>7</sup>

**Notes:**

- 1 Expressed as administration expense divided by (total expense - extraordinary expense)
- 2 Please provide an estimate for 2022-23.
- 3 2023-24 target can be similar to previous years.
- 4 2024-25 target can be similar to previous years.
- 5 Metric weighting is the percent of at-risk funding tied to this metric. Total at-risk funding is 25% in 2023-24, 40% in 2024-25.
- 6 All metric weightings add up to 25% for 2023-24. Minimum: 3%, Maximum: 13% for any one metric.
- 7 All metric weightings add up to 40% for 2024-25. Minimum: 5%, Maximum: 22% for any one metric.

## FUNDING PERFORMANCE METRIC

### Research Commercialization<sup>1</sup>

Source: Technology and Innovation annual survey of CARUs

The U of A has been successful in its research commercialization, however, this metric can fluctuate quite substantially. In setting our target we first removed the last two years, as these include amounts related to COVID research, which are anticipated to decrease. Given that this metric is subject to fluctuation, we set our 2023-24 target to the lowest year during the 2016-17 to current period. As this is a key area for the U of A, we have set a growth target for 2024-25.

Provider	2020-21 Actual (Mil)	2021-22 Actual (Mil)	2022-23 Estimate <sup>2</sup>	2023-24 Target <sup>3</sup>	2024-25 Target <sup>4</sup>
University of Alberta	139.76	167.15	118.7M	105.4M	110.7M
			<b>Tolerance Threshold</b>	5%	5%
			<b>Metric Weighting<sup>5</sup></b>	3% <sup>6</sup>	5% <sup>7</sup>

Notes:

- 1 Expressed as sponsored research revenue from industry and non-profit sectors
- 2 Please provide an estimate for 2022-23.
- 3 2023-24 target should be equal to or greater than the 2022-23 estimate plus the 2023-24 tolerance threshold, but not required.
- 4 2024-25 target should be equal to or greater than the 2023-24 target plus the 2024-25 tolerance threshold, but not required.
- 5 Metric weighting is the percent of at-risk funding tied to this metric. Total at-risk funding is 25% in 2023-24, 40% in 2024-25.
- 6 All metric weightings add up to 25% for 2023-24. Minimum: 3%, Maximum: 13% for any one metric.
- 7 All metric weightings add up to 40% for 2024-25. Minimum: 5%, Maximum: 22% for any one metric.

## TRANSPARENCY METRIC

### FLE Enrolment for International Learners by School Year1

Source: LERS Cubes (filtered on select Legal Status of "Visa" or "Other Visa")

The U of A has targeted a steady state for international enrolment.

The global environment is currently unstable, with potential geopolitical tensions that may affect international student mobility and there will be VISA processing delays due to the federal labour disruption. Given this situaion, it will be particularly important to revisit the 2024-25 metric for this target.

Provider	2020-21 Actual	2021-22 Estimate	2021-22 Actual	2022-23 Target 2	2023-24 Target	2024-25 Target
University of Alberta	7,609	7,894	7,894	7,894	7,894	7,894

REVISE

Notes:

- 1 International Learners are Non-Canadian learners attending an approved program within Alberta, and therefore require a visa to attend.
- 2 Actuals to be validated against data in LERS in summer 2023.
- 3 U of A figures do not include "off-shore" students, who had previously been included.