ACADEMIC COUNCIL
January 28, 2025
2:30 – 4:30 p.m.
In Person
Bordessa Hall
55 Bond St. E, Oshawa Ont.
DTB 524

AGENDA	Suggested Start Time
1. Call to Order	2:30 p.m.
2. Agenda (M)	
3. Chair's Remarks	2:35 p.m.
4. Inquiries and Communications a) COU Academic Colleague Report (Robyn Ruttenberg-Rozen)	2:45 p.m.
5. Provost's Remarks a) Senior Academic Administrator Search Update	2:55 p.m.
6. ***2025-2026 Tuition Framework****(D) (Lori Livingston & Sarah Thrush)**	3:05 p.m.
Committee Reports	
7. Undergraduate Studies Committee (Mary Bluechardt) **a) Major Program Modification** **(*i*)** ***Faculty of Health Sciences, Health Studies Minor**** **(M)**	3:30 p.m.

*Documents attached (C) Consultation (D) Discussion (I) Information (M) Motion

(ii) ***Faculty of Social Science and Humanities, Communications and Digital Media Studies; New Minor – AI and Content Creation**** **(M)**	
8. Graduate Studies Committee (Joe Stokes)	3:40 p.m.
9. Governance and Nominations Committee (Lori Livingston) a) *Elections Key Dates and Open Positions**(I)	3:45 p.m.
10. Research Committee (Les Jacobs) a) Strategic Research Plan Update b) *Advanced Manufacturing Research Centre (AMRC)** (M) c) *Centre for Interdisciplinary Nutrition Research & Innovation (CINRI)** (M)	3:50 p.m.
11. Policy Face to Face Consultation (Brad MacIsaac) a) *Procurement of Goods & Services Procedure** (C) b) *Signing Authority and Approval of Expenditures Procedure**(C)	4:10 p.m.
12. Consent Agenda: **(a)** *Minutes of the Meeting of November 26, 2024**(M) ***(b)*** *Minor Program Adjustments from USC* (I)* (i) *Faculty of Social Science and Humanities: Bachelor of Arts - Liberal Studies; Science, Technology and Society Specialization** (I) (ii) *Faculty of Social Science and Humanities: Diploma in Public Policy**(I) (iii) *Faculty of Science; Bachelor of Science in Computer Science, Data Science and Digital Media Specializations** (I) (iv) *Faculty of Science: Bachelor of Science in Integrated Mathematics and Computer Science** (I) ***(c)*** *Cyclical Program Review from GSC and USC* (I)* (i) *MSc and PhD in Modelling and Computational Science – Final Assessment Report and Program Learning Outcomes** (I) (ii) *Bachelor of Science; Physics 18 Month Follow-Up Report** (I) ***(d)*** *Academic Policy Instruments (USC)* (i) *Undergraduate Advanced Standing and Transfer Credit Procedures**(I)	4:25 p.m.
13. Other Business Land acknowledgement for February Academic Council meeting	4:25 p.m.
Termination (M)	4:30 p.m.

Nicola Crow, University Secretary

*Documents attached (C) Consultation (D) Discussion (I) Information (M) Motion

Academic Council Written Consultation*:
In accordance with the Policy Framework, see below for items available for Academic Council written consultation by providing feedback to policy@ontariotechu.ca:

POLICY	CATEGORY	APPROVING AUTHORITY
1. *Student Housing Policy*	ADM	President

ADM = Administrative LCG = Legal, Compliance and Governance

ACADEMIC COUNCIL REPORT

SESSION:		**ACTION REQUESTED:**	
Public	☒	**Decision**	☐
Non-Public	☐	**Discussion/Direction**	☒
		Information	☐

TO: **Academic Council**

DATE: **January 28, 2023**

PRESENTED BY: **Lori Livingston, Provost and Vice-President, Academic**
Sarah Cantrell, AVP Planning and Strategic Analysis

SUBJECT: **2025-26 Tuition and Co-op Fees**

BACKGROUND/CONTEXT & RATIONALE:

The tuition fee framework, released by the provincial government in December 2018, regulates all publicly funded programs and allows for tuition fee differentiation based on program and program year.

The framework initially had all domestic tuition rates decrease by 10% in 2019-20, then remain frozen since. The Ministry released the new framework for the ***2025-26 which continues the tuition freeze for domestic students*** and a 5% increase on out-of-province

As a reminder, MCU allowed for tuition fee anomaly adjustments for three of our degree programs in 2023-24. The tuition anomaly approval allows for annual increase adjustments of up to 7.5% for these programs until we reach the fee level approved by MCU for these programs. Our BCom and BSC and BSc Management Computer Science programs are increasing by 7.5% for 2025-26 and our Engineering undergraduate program is increasing to 3.4% to align with the tuition anomaly policy. The other domestic increase allowable is the 5% proposed increase for our Graduate diploma in Accounting as it is outside of the tuition fee framework.

The Ministry has allowed 5% increase to domestic out-of-province rates and the rates proposed below are within this framework. The university is proposing the maximum allowable for out-of-province fee increase for 2025-26.

International tuition or cost recovery programs are not included in the limits imposed by the provincial framework. Recommended international tuition fees for programs were informed by comparative analysis of international fees within the sector for similar programs. Tuition fees for the majority of Ontario Tech programs remain below the system average. Recommended adjustments bring Ontario Tech tuition fee levels closer to the average of competing programs. Undergraduate international fee increases of 3% for most programs with 5% for BIT have been proposed for the first year of

undergraduate programs with a commitment to capping further tuition fee increases in years 2, 3 and 4 (for undergraduate programs) to no more than 5% per year. The 5% increase for BIT is a market-based increase which still has the tuition fee at less than the average of our competitor.

The University is proposing 0% international tuition increase for research based Masters programs and PhD programs and 5% increase to Professional/course-based Masters and graduate diplomas.

Undergraduate Co-op and Internship fees are being adjusted for inflation and have a 2% increase to the current fee recommended for approval. These fees fall outside of the tuition fee framework and are being adjusted by the same percentage as ancillary fees.

Recognizing the need to address financial challenges of our students, the University continues to significantly invest in student financial supports by increasing the amount of entrance scholarships, in-course scholarships and bursaries available for students.

SUPPORTING REFERENCE MATERIALS:

- Appendix 1: Recommendations for Ontario Tech 2024-25 tuition fees

Appendix 1: Recommendations for Ontario Tech 2025-2026 tuition fees

Undergraduate Domestic

Highlights reflect approved MCU Tuition Anomalies Review to increase domestic tuition up to 7.5% annually until fee has reached newly approved tuition maximum (applies to BCom, BEng and BSc Computer Science). Shaded cells highlight the tuition paid in 2024-25 and how tuition fee anomaly increase applies to student moving into the next year of study in 2025-26.

	2024-2025	2025-2026	2025-26 Increase
BA, BASc, BAS, BEd, BHSc, BSc, BSc & Mgt, UG Diploma			
First Year	$5,982.80	$5,982.80	0%
Second Year	$5,956.38	$5,956.38	0%
Third Year	$5,926.62	$5,926.62	0%
Fourth Year	$5,920.76	$5,920.76	0%
Fifth Year	$5,914.98	$5,914.98	0%
BCom			
First Year	$9,347.00	$10,048.02	7.5%
Second Year	$9,347.00	$10,048.02	7.5%
Third Year	$8,011.44	$10,048.02	7.5%
Fourth Year	$8,003.52	$8,003.52	0%
BIT			
First Year	$9,031.18	$9,031.18	0%
Second Year	$9,022.42	$9,022.42	0%
Third Year	$9,013.68	$9,013.68	0%
Fourth Year	$8,991.78	$8,991.78	0%
BEng, BEng & Mgmt			
First Year	$10,851.52	$11,219.00	3.4%
Second Year	$10,851.52	$11,219.00	3.4%
Third Year	$9,372.30	$11,219.00	3.4%
Fourth Year	$9,283.04	$9,283.04	0%
Fifth Year	$9,159.26	$9,159.26	0%
BSc & BSc & Mgmt (Comp Sci, Integrated Math & Comp Sci)			
First Year	$7,326.54	$7,876.01	7.5%
Second Year	$7,326.54	$7,876.01	7.5%
Third Year	$6,327.84	$7,876.01	7.5%
Fourth Year	$6,321.78	$6,321.78	0%
Fifth Year	$6,321.64	$6,321.64	0%
BScN, BHA			
First Year	$6,100.68	$6,100.68	0%
Second Year	$6,094.76	$6,094.76	0%
Third Year	$6,088.84	$6,088.84	0%
Fourth Year	$6,082.92	$6,082.92	0%

Undergraduate Out of Province

Current framework allows up to 5% increase in tuition fees for out-of-province students (or application of tuition anomaly adjustment of up to 7.5% annually). *Note: Shaded cells show how the tuition anomalies policy applies to students (shading highlights the tuition paid in 2024-25 and how tuition fee anomaly increase applies to student moving into the next year of study in 2025-26).*

	2024-2025	2025-2026	2025-26 Increase*
BA, BASc, BAS, BEd, BHSc, BSc, BSc & Mgt, UG Diploma			
First Year	$6,596.02	$6,925.82	5%
Second Year	$6,566.88	$6,895.22	5%
Third Year	$6,534.08	$6,860.78	5%
Fourth Year	$6,527.60	$6,853.98	5%
Fifth Year	$6,521.24	$6,847.30	5%
BCom			
First Year	$9,347.00	$10,048.02	7.5%
Second Year	$9,347.00	$10,048.02	7.5%
Third Year	$8,832.60	$10,048.02	7.5%
Fourth Year	$8,823.86	$9,265.04	5%
BIT			
First Year	$9,956.84	$10,454.68	5%
Second Year	$9,947.20	$10,444.56	5%
Third Year	$9,937.56	$10,434.42	5%
Fourth Year	$9,913.42	$10,409.08	5%
BEng, BEng & Mgmt			
First Year	$10,851.52	$11,219.00	3.4%
Second Year	$10,851.52	$11,219.00	3.4%
Third Year	$10,332.94	$11,219.00	3.4%
Fourth Year	$10,234.52	$10,746.24	5%
Fifth Year	$10,098.08	$10,602.98	5%
Note: BEng and BEng & Mgmt First Year to Third Year follow tuition anomalies increase policy, Fourth and Fifth Year follow Out-of-Province tuition increase policy.			
BSc & BSc & Mgmt (Comp Sci, Integrated Math & Comp Sci)			
First Year	$7,326.54	$7,876.02	7.5%
Second Year	$7,326.54	$7,876.02	7.5%
Third Year	$6,976.42	$7,876.02	7.5%
Fourth Year	$6,969.74	$7,318.22	5%
Fifth Year	$6,969.60	$7,318.08	5%
BScN, BHA			
First Year	$6,725.98	$7,062.26	5%
Second Year	$6,719.44	$7,055.40	5%
Third Year	$6,712.94	$7,048.58	5%
Fourth Year	$6,706.40	$7,041.72	5%

*Out-province tuition increase may change.

Undergraduate International

Note: Shaded cells show how the tuition increases applies to international students (shading highlights the tuition paid in 2024-25 and how tuition fee increase applies to student moving into the next year of study in 2025-26).

	2024-2025	2025-2026	2025-26 Increase **
BA, BASc, BAS, BEd, BHSc, BSc & Mgt			
First Year	$32,188.02	$33,153.66	3%
Second Year	$32,188.02	$33,153.66	3%
Third Year	$32,188.02	$33,153.66	3%
Fourth Year	$26,722.70	$33,153.66	3%
Fifth Year	$26,604.84	$27,524.38	3%
BCom			
First Year	$35,703.16	$36,774.24	3%
Second Year	$35,703.16	$36,774.24	3%
Third Year	$35,703.16	$36,774.24	3%
Fourth Year	$34,080.28	$36,774.24	3%
BIT			
First Year	$38,967.30	$40,915.66	5%
Second Year	$38,967.30	$40,915.66	5%
Third Year	$38,967.30	$40,915.66	5%
Fourth Year	$35,578.82	$40,915.66	5%
BEng, BEng & Mgmt			
First Year	$43,888.52	$45,205.16	3%
Second Year	$43,888.52	$45,205.16	3%
Third Year	$43,888.52	$45,205.16	3%
Fourth Year	$40,072.12	$45,205.16	3%
Fifth Year	$34,852.36	$41,274.28	3%
BSc & BSc & Mgmt (Comp Sci, Integrated Math & Comp Sci)			
First Year	$35,659.76	$36,729.54	3%
Second Year	$35,659.76	$36,729.54	3%
Third Year	$35,659.76	$36,729.54	3%
Fourth Year	$32,558.90	$36,729.54	3%
Fifth Year	$28,317.80	$33,535.66	3%
BScN, BHA			
First Year	$32,822.26	$33,806.93	3%
Second Year	$32,822.26	$33,806.93	3%
Third Year	$32,822.26	$33,806.93	3%
Fourth Year	$31,330.34	$33,806.93	3%

**Commitment to cap future tuition fee increases to no more than a 5% increase per year for international students.

Undergraduate Co-op and Internship

	2024-2025	2025-2026	2025-26 Increase
Mandatory Co-op and Career Readiness Workshop Series	$720.00	$734.40	2%
Co-op Work Term (per term)	$720.00	$734.40	2%
Internship Work Term (FBIT/FEAS only; per term)	$900.00	$918.00	2%

In order to receive the co-op designation, the following fees are required; mandatory co-op registration, the Co-operative Education Preparatory Course, and three work terms. Any additional work terms beyond the required three will be charged at the applicable co-op work term rate.

Graduate Domestic

Program Based Tuition

	2024-2025	2025-2026	2025-26 Increase
Graduate Degree - Research Based Programs			
MA (Crim, SPI), MHSc, MSc	$7,579.30	$7,579.30	0%
MSc (Computer Science)	$7,579.30	$7,579.30	0%
MASc	$7,859.94	$7,859.94	0%
PhD	$7,579.30	$7,579.30	0%
Graduate Degree – Course Based Programs			
MScN	$8,761.50	$8,761.50	0%
EdD	$10,097.00	$10,097.00	0%
Graduate Diploma			
Diploma in Accounting	$9,380.28	$9,849.28	5%
Diploma in Nuclear Technology	$5,906.62	$5,906.62	0%
Diploma in Nuclear Design Engineering	$5,906.62	$5,906.62	0%
Diploma in Engineering Management	$5,906.62	$5,906.62	0%

Credit Based Tuition (per 3-credit course)

	2024-2025	2025-2026	2025-26 Increase
Graduate Degree (Per 3-credit course)			
MEd***	$1,576.47	$1,576.47	0%
MA in Education***	$1,576.47	$1,576.47	0%
MITS***	$1,257.52	$1,257.52	0%
MBAI, MFDA***	$2,709.00	$2,709.00	0%
MEng, MEngM***	$1,476.66	$1,476.66	0%
Graduate Diploma (Per 3-credit Course)			
Diploma in Ed & Digital Technology	$1,576.46	$1,576.46	0%
Police Leadership	$1,576.46	$1,576.46	0%
Work Disability Prevention	$1,576.46	$1,576.46	0%

***Program requires 30 credits hours total.

Graduate International

Program Based Tuition

	2024-2025	2025-2026	2025-25 Increase
Graduate Degree – Research Based Programs			
MA (Crim, SPI), MHSc, MSc	$20,124.30	$20,124.30	0%
MSc (Computer Science)	$20,124.30	$20,124.30	0%
MASc	$22,313.12	$22,313.12	0%
PhD	$19,166.00	$19,166.00	0%
Graduate Degree – Course Based Programs			
MScN	$25,618.58	$26,899.50	5%
EdD	$19,155.36	$20,113.14	5%
Graduate Diploma			
Diploma in Accounting	$14,704.47	$15,439.68	5%
Diploma in Nuclear Technology	$21,286.06	$22,350.36	5%
Diploma in Nuclear Design Engineering	$21,286.06	$22,350.36	5%
Diploma in Engineering Management	$21,286.06	$22,350.36	5%

Credit Based Tuition (per 3-credit course)

	2024-2025	2025-2026	2025-25 Increase
Graduate Degree (Per 3-credit course)			
MEd***	$2,869.24	$3,012.70	5%
MA in Education***	$2,869.24	$3,012.70	5%
MITS***	$4,385.06	$4,604.30	5%
MBAI, MFDA***	$4,961.25	$5,209.31	5%
MEng, MEngM***	$4,257.21	$4,470.07	5%
Graduate Diploma (Per 3-credit Course)			
Diploma in Ed & Digital Technology	$2,869.24	$3,012.70	5%
Police Leadership	$2,869.24	$3,012.70	5%
Work Disability Prevention	$2,869.24	$3,012.70	5%

***Program requires 30 credits hours total.

English for Academic Purposes (EAP) Program

	2024-2025	2025-2026	2025-26 Increase
All Levels	$3,041.29	$3,132.52	3%

ACADEMIC COUNCIL REPORT

ACTION REQUESTED:

Recommendation	☐
Decision	☒
Discussion/Direction	☐
Information	☐

DATE: **28 January 2025**

FROM: **Undergraduate Studies Committee**

SUBJECT: **Major Program Modification – Health Studies Minor**

COMMITTEE MANDATE:
In accordance with the Undergraduate Studies Committee (USC) Terms of Reference, USC has the responsibility "to examine proposals for new undergraduate degree programs and major changes to existing programs and to recommend their approval, as appropriate, to the Academic Council".

MOTION FOR CONSIDERATION:
That pursuant to the recommendation of the Undergraduate Studies Committee, Academic Council hereby approves the Major Program Modification to add a minor in Health Studies available to students in programs from within the Faculty of Social Science and Humanities.

BACKGROUND/CONTEXT & RATIONALE:
The Faculty has proposed the creation of a new minor in Health Studies for students in the Faculty of Social Science and Humanities. The existing programs in FSSH do not provide opportunities for students to learn about health and health care. A health studies minor would enhance the ability for FSSH graduates to work effectively in roles that apply both health and the law to resolve conflict and promote well-being among clients.

Faculty from both FHS and FSSH have worked together to create the Minor in Health Studies to complement the Minor in Legal Studies already available. Students in FSSH have stated that they see value in having access to courses in FHS that focus on health care and health systems but not health sciences. FHS students currently do not have easy access for obtaining relevant minors from other faculties and they would welcome

this opportunity. Some students have expressed an interest in pursuing health law career opportunities.

RESOURCES REQUIRED:
No additional human or physical resources required.

TRANSITION PLAN:
As of Fall 2025, the Health studies minor will be available to FSSH students, and FHS students will have easier access to enrolling in the existing legal studies minor in FSSH.

The Faculty of Health Sciences will provide a description of the Minor in Health Studies on their web page and the Faculty of Social Sciences and Humanities will promote this new minor to their students.

CONSULTATION AND APPROVAL:

- ✓ FHS Curriculum Committee: 16 May 2024
- ✓ Faculty Council: 5 June 2024
- ✓ Undergraduate Studies Committee (Recommendation): 19 November 2024
- Academic Council (Approval): 28 January 2025

NEXT STEPS:
Pending the approval of Academic Council, this change will be included in the 2025-2026 Academic Calendar.

SUPPORTING REFERENCE MATERIALS:

- Major Program Modification Proposal

ACADEMIC COUNCIL REPORT

ACTION REQUESTED:

Recommendation	☐
Decision	☒
Discussion/Direction	☐
Information	☐

DATE: **28 January 2025**

FROM: **Undergraduate Studies Committee**

SUBJECT: **Major Program Modification – AI and Content Creation Minor**

COMMITTEE MANDATE:
In accordance with the Undergraduate Studies Committee (USC) Terms of Reference, USC has the responsibility "to examine proposals for new undergraduate degree programs and major changes to existing programs and to recommend their approval, as appropriate, to the Academic Council".

MOTION FOR CONSIDERATION:
That pursuant to the recommendation of the Undergraduate Studies Committee, Academic Council approves the Major Program Modification to add a minor in AI and Content Creation.

BACKGROUND/CONTEXT & RATIONALE:
This new minor will leverage the unique expertise within the Faculty to establish a much-needed option for students focused on AI content generation as a professional skill. From a career perspective, this AI and Content Creation minor will afford students the chance to demonstrate additional skills that employers across Canada will be seeking, helping them distinguish themselves from their peers in a unique way.

RESOURCES REQUIRED:
No additional resources are required.

CONSULTATION AND APPROVAL:
- ✓ Curriculum Committee: 14 November 2024
- ✓ Faculty Council: 29 November 2024
- ✓ Undergraduate Studies Committee (Recommendation): 17 December 2024
- • Academic Council (Approval): 28 January 2025

Consultation with existing CDMS students confirmed the interest in and need for an AI-focused option with many noting that they are already expected to engage with AI tools in

current employment settings.

NEXT STEPS:

- Pending the approval of Academic Council, this change will be included in the 2025-2026 Academic Calendar.

SUPPORTING REFERENCE MATERIALS:

- Major Program Modification Proposal

ACADEMIC COUNCIL REPORT

SESSION:		ACTION REQUESTED:	
Public	☒	Decision	☐
Non-Public	☐	Discussion/Direction	☐
		Information	☒

TO: **Academic Council**

DATE: **January 28, 2025**

FROM: **Nicola Crow, University Secretary**
Kirstie Ayotte, Assistant University Secretary

SUBJECT: **Elections 2025 – Timeline**

COMMITTEE MANDATE:
At its meeting of January 21, 2025, GNC considered and approved the timelines and processes for the 2025 elections in accordance with its mandate as follows:

GNC is responsible for providing advice to Academic Council on its governance structure and processes, the nomination and election of new members, and Academic Council performance.

KEY DATES APPROVED BY GNC:

Key Dates for 2025 Elections

- February 10, 2025: Nominations Open
- March 7, 2025: Nominations Close
- March 10-12, 2025: Review Nomination Eligibility
- March 14, 2025: Mandatory Student Candidate Information Meetings (if required)
- March 17-26, 2025: Campaign Period (if required)
- March 26-28, 2025: Online voting (if required)
- April 15, 2025: Results presented to GNC for recommendation to Academic Council
- April 22, 2025: Academic Council approval of GNC recommendation
- May/June: Calls for expressions of interest for AC Committees
- June 17, 2025: Results of expressions of interest presented to GNC for recommendation to Academic Council
- June 24, 2025: Committee appointments approved by Academic Council

- Completion of 2025-2026 Elections Cycle after AC Approval on June 24, 2025

BACKGROUND – 2024 ELECTIONS

- Following the 2023 election process, the University Secretary committed to reviewing the procedures for elections and expressions of interest.
- GNC reviewed and approved the recommendation in 2024 to extend the timeline, providing more opportunities for potential candidates to participate.
- The approval consolidated the process into a single election period rather than conducting multiple election cycles and streamlined the process.

ATTACHMENTS

- Appendix A: Vacancies to be filled via the 2025 election process

Appendix A

Annual Ontario Tech University Elections - Academic Council

2025-2026 Academic Year

ELECTIONS

Academic Council

Elected:
- Faculty of Business and Information Technology – 3
- Faculty of Engineering and Applied Science – 3
- Faculty of Health Sciences – 1
- Faculty of Science - 1
- Faculty of Social Sciences and Humanities – 1
- Faculty At-Large – 1
- Undergraduate students - 2 (one for Board of Governors Liaison)

Renewable:
- Undergraduate Students – 2
- Graduate Students – 2

Academic Appeals Committee

Elected:
- Faculty Members - 5
- Undergraduate Student - 1

Renewable:
- Undergraduate Students – 2

Honorary Degrees Committee

Elected:
- Faculty Members - 2
- Undergraduate Student – 1

Undergraduate Studies Committee

Elected:
- Undergraduate Student – 1

Renewable:
- Undergraduate Student – 1

Graduate Studies Committee

Renewable:
- Graduate Student – 1 (PhD)

EXPRESSIONS OF INTEREST

AC Steering Committee

- Elected Representatives of Academic Council (Teaching, Administrative Staff/Students) – 2

Renewable:
- Vice Chair of Academic Council (selected from Steering Committee) – 1
- Undergraduate Student (AC Member) - 1

Academic Appeals Committee
Chosen from within Academic Appeals Committee

- Faculty Member Chair - 1
- Faculty Member Vice Chair - 1

GNC

- Elected AC members - 4
    - One each from FBIT, FSci, FHSci and FEAS

Renewable:
- FSSH – 1
- Undergraduate Student (AC Member) – 1

Graduate Studies Committee
- Graduate Student Council Representative – 1
- Elected AC Faculty Member with Graduate Faculty Appointment – 1

Research Committee

- Elected AC Faculty members from Academic Council – 2

Academic Council

- Alternate COU Academic Colleague - 1

ACADEMIC COUNCIL REPORT

SESSION:		**ACTION REQUESTED:**	
Public	☒	**Decision**	☒
		Discussion/Direction	☐
		Information	☐
Financial Impact	☒ **Yes** ☐ **No**	**Included in Budget**	☒ **Yes** ☐ **No**
TO:	**Academic Council**		
DATE:	**November 26, 2024**		
FROM:	**Research Committee**		
PRESENTED BY:	**Les Jacobs, Vice-President, Research and Innovation**		
SUBJECT:	**Advanced Manufacturing Research Center (AMRC)**		

COMMITTEE MANDATE:
In accordance with Article 1.4(b) of By-law No. 2 and the Procedures for the Creation of Research Entities, Academic Council makes recommendations to the Board on matters including the establishment of research centres.

MOTION FOR CONSIDERATION:

That pursuant to the recommendation of the Research Committee, Academic Council hereby recommends the Establishment of Advanced Manufacturing Research Center (AMRC) for approval by the Board of Governors, as presented.

Recommendation: The Research Committee, at its May 24, 2023 meeting, reviewed the proposal to create the Advanced Manufacturing Research Center (AMRC) proposed by five Faculty Members in the Faculty of Engineering and Applied Science.

We request that Academic Council review the Advanced Manufacturing Research Centre (AMRC) proposal and find it appropriate to recommend to the Board of Governors for approval.

The Advanced Manufacturing Research Center (AMRC) aims to bring together a diverse and multidisciplinary community of researchers who are interested in studying today and future needs of manufacturing systems including the needs of manufacturing sectors in the aspects of **P**redictivity, **A**gility, **R**econfigurability, **S**ustainability, and **I**ntelligence (**PARSI**). PARSI demonstrates the five research angles of the advanced manufacturing research center. The five research angles in advanced manufacturing research center are define based on the most crucial challenges in manufacturing and relevant industries in Canada and worldwide. The angles are described as follows.

Predictivity: Inclusion of the four aspects of metrology and inspection, maintenance planning, multi-physics simulation, and digital twin philosophy allows AMRC research to predict the health, and the sources of uncertainties in the manufacturing units, and processes.
Agility: Developing agile manufacturing units and systems with the novel aspects of the fifth industrial revolution to put “human in the loop” in the most efficient way, in combination with applications of the traditional cyber-physical solutions, autonomous technologies, robots and collaborative robots to create the most agile manufacturing solutions is the focus of this angle at AMRC.
Reconfigurability: Developing the manufacturing solutions at AMRC with the capabilities for reconfiguration including the parameters of self-adaptation, self-calibration, and self-adjustment aim toward the best ways in use of the available resources with their ultimate efficiencies.
Sustainability: Design and Manufacturing are merged at AMRC for the most sustainable development of the products. The efficiency of the Design for Manufacturing, topology optimization, and advanced materials supports the sustainability of the manufacturing process to maintain the required design specifications, features, and tolerances, consumption of energy, and impact with the environment at minimum waste.
Intelligence: AMRC supports the Canadian and worldwide industries to develop and implement intelligent manufacturing systems by developing cyber-physical solutions with a combination of data sensory, connectivity, data analytics, and intelligent decision-making manufacturing features.
Concept development, modeling, developing methodologies, and work with industries to advance the technology readiness level of the developed solutions are the four radial depths of the research work at AMRC.
The university's commitment in advancing the field is further demonstrated by the skills and background of the hired Faculty members over a decade to create a team of experts in product design and manufacturing. The objective of AMRC is to create a strong support to our partners, Canadian industries, and to our community for better and more efficient design and development of products, machines, processes, and technologies.
The two main niche areas that PARSI-AMRC is aim to focus are advanced design and manufacturing of parts, components, and assemblies in Battery and Fuel Cell Electric Vehicles (B-FC EV), and Small Modular Reactor (SMR) technologies. Vehicle designers rely on manufacturability principles to create structure and packaging of the components with the goal of weight reduction and improving stiffness for more fuel-efficient, more environmentally friendly, faster, and safer to use vehicles. By understanding the manufacturing constraints and limitations, designers can optimize the shape and configuration of the parts to minimize manufacturing costs, waste, and time. Similar research and development also can be considered in power generation industries. By optimizing the structure of the vehicles, designers can improve the vehicle handling, drivability, and performance while also improving its fuel economy, or the battery range in the case of electric vehicles.
In sports, the optimization and customization of design of equipment and its manufacturability plays a critical role in helping athletes with their performance. By reducing weight and improving the performance using new materials, athletes can run faster, jump higher, and throw farther. This is particularly important in sports such as cycling, skiing, and swimming, where the efficiency of the tools can make a significant difference in a race. Research, innovation, and design of customized sport equipment aligned with the current research and development at Ontario Tech in additive manufacturing and rapid fabrication has a great potential as a niche area.

In the construction industry, the manufacturability of many components can be researched using the methodologies developed at PARSI-AMRC. Considering the recent applications of 3D printing and additive manufacturing principles in construction, a significant contribution to the construction industries can be pictured in a near future.
These research areas have significant economic and environmental benefits, as more energy-efficient products can reduce the cost of services to the community and minimize the carbon footprint of the relevant industries.
Research in the five core angles and applications allow developing adaptive designs and product development for a wide range of engineering applications to improve their performance, efficiency, environment friendliness, and safety. The ultimate goal of PARSI-AMRC is to advance scientific knowledge in developing and evaluating products in various complexities with the best use of the resources. The outcomes of the conducted research and developed innovative technologies will transform the future of Durham region, Ontario, and Canada.
Ontario Tech University is a leader in product design and manufacturing engineering research, as evidenced by its excellence of the researchers in the field and state-of-the-art research facilities. Manufacturing engineering program has been the first engineering program at Ontario Tech with the objective to respond to the needs of the Canadian industries in various sectors.

RESOURCES REQUIRED:

8.1 Physical Requirements

Advanced Manufacturing Research Center will utilize the space currently available to its founding members. However, a central office will be necessary to coordinate activities and hold meetings with potential clients and stakeholders. The location of this office in close proximity to the research infrastructure is crucial, and thus an office in the ACE building would be ideal for this purpose.

8.2 Staffing Requirements

As the Advanced Manufacturing Research Center is built upon existing faculty collaborations and labs, a key area of growth is to acquire a grant writer who can assist with ongoing projects as well as proposals in the development stage. Thus, the primary goal in the first few years is to establish a reliable funding source for hiring a staff member. To achieve this objective, the proposers will be encouraged to include funding for this position in their grant applications**.**

IMPLICATIONS:

Ontario Tech University's strategic research plan aims to foster interdisciplinary research collaborations that address complex global needs of the society with full consideration of environmental impacts of the technologies. Tech with conscious is one of the main perspectives in developing Ontario Tech research which is also inherent in vision and mission of AMRC.

Advanced Manufacturing research is one of the key subjects in Ontario Tech’s strategic research plan. In addition, the Ontario Tech’s strategic research plan is used directly to define the strategic research applications/fields at AMRC. These research applications/fields are defined currently as, battery and fuel cell electric vehicles, autonomous vehicles including air and road transportation, energy sectors including the developments of Small Modular Reactors, sport tools and equipment, and defense.

By leveraging the expertise in engineering design, advanced manufacturing, and material, AMRC will conduct cross-disciplinary research that brings together expertise to address the challenges in various industries and sectors that are vital to the economy, security, and global competitiveness of Canada. Moreover, AMRC's main mission is to develop innovative solutions to enhance the safety, performance, and efficiency of various industries, including automotive, renewable energy production, and aerospace. These research activities are aligned well with Ontario Tech University's strategic research priorities, which include energy and sustainability.

Furthermore, the AMRC's research mandate involves collaboration with industry partners, government agencies, and other academic institutions, which provides opportunities for knowledge transfer and contributes to the development of a skilled workforce. This approach aligns well with Ontario Tech University's commitment to fostering partnerships that support economic and social development.

ALIGNMENT WITH MISSION, VISION, VALUES & STRATEGIC PLAN:

3.1.2. Vision

Our vision is to be a world-class center for research and innovation in the field of advanced manufacturing toward better design and maintenance of efficient and environment friendly products, machines, processes, and equipment.

3.1.3. Mission

AMRC's mission is to drive the development and advancement of cutting-edge technologies and practices that enhance the advanced manufacturing research angles in four levels of conceptualization, modeling, methodology development, and technology readiness improvement in various fields such as Battery and Fuel Cell Electric Vehicles, autonomous vehicles including air and road transportation, sport, defense, and energy sectors. By leveraging the expertise in engineering design, manufacturing, materials, adaptation, and body and surface development research, we seek to push the boundaries of what is possible and deliver innovative solutions that address real-world challenges.

ALTERNATIVES CONSIDERED:

4.1.1 Review and Revision: The four radial levels of conceptualization, modeling, methodology development, and technology readiness improvement are the essential research levels at AMRC and are defined as the core components of the mission in this research center. These four levels of research comprehensively cover the entire range of research envisioned for AMRC.

The five research angles of Predictivity, Agility, Reconfigurability, Sustainability, and Intelligence are selected based on the needs of today and future of industries in Canada and worldwide. However, these five angles can be reviewed and revised every five years to keep the research themes at AMRC always update and align with the needs to the society.

CONSULTATION:

- Consultation and feedback on the establishment of the Advanced Manufacturing Research Center (AMRC) were carried out at different levels among the Faculty of Engineering and Applied Science starting from 2022. The proposal of the AMRC was presented in the Faculty Council on March 28, 2024. Then, the proposal was discussed with the University Research Committee on November 19, 2024.

COMPLIANCE WITH POLICY/LEGISLATION:

The establishment of the AMRC aligns with Ontario Tech University's Procedure for the Creation of Research Units, Centres, and Institutes.

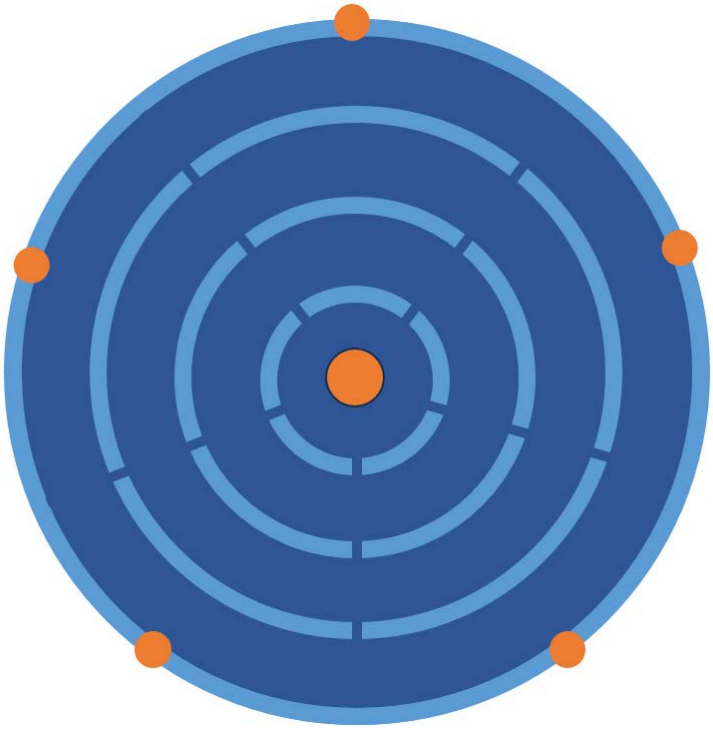
NEXT STEPS:

Board of Governors for approval.

SUPPORTING REFERENCE MATERIALS:

- The proposal for Advanced Manufacturing Research Center is attached.
- The detailed budget projection for the first five years of AMRC including all sources of income and expected expenses and disbursements are presented in attached excel file.

Proposal for the Establishment of Advanced Manufacturing Research Center (AMRC)



March, 2024

1. Name of the Entity:
PARSI - Advanced Manufacturing Research Center (AMRC).

2. Proposers – including name, title, and contact information

Dr. Ahmad Barari, Professor, Faculty of Engineering and Applied Science, Ontario Tech University

Tel: 905.721.8668 x5728 | ahmad.barari@ontariotechu.ca

Dr. Ghaus Rizvi, Professor, Faculty of Engineering and Applied Science, Ontario Tech University

Tel: 905.721.8668 x5745 | ghaus.rizvi@ontariotechu.ca

Dr. Remon Pop-Iliev, Professor, Faculty of Engineering and Applied Science, Ontario Tech University

Tel: 905.721.8668 x5717 | remon.pop-iliev@ontariotechu.ca

Dr. Hossam Kishawy, Professor and Dean, Faculty of Engineering and Applied Science, Ontario Tech University

Tel: 905.721.8668 x2819 | hossam.kishawy@ontariotechu.ca

Dr. Amirkianoosh Kiani, Associate Professor, Faculty of Engineering and Applied Science, Ontario Tech University

Tel: 905.721.8668 x5730 | amirkianoosh.kiani@ontariotechu.ca

Dr. Sayyed Ali Hosseini, Associate Professor, Faculty of Engineering and Applied Science, Ontario Tech University

Tel: 905.721.8668 x5724 | SayyedAli.Hosseini@ontariotechu.ca

Dr. Jana Abou-Ziki, Assistant Professor, Faculty of Engineering and Applied Science, Ontario Tech University

Tel: 905.721.8668 x5725 | Jana.AbouZiki@ontariotechu.ca

Dr. Ramona Fayazfar, Assistant Professor, Faculty of Engineering and Applied Science, Ontario Tech University

Tel: 905.721.8668 x5751 | ramona.fayazfar@ontariotechu.ca

3. Background Description and Justification

3.1. Explain why the entity is needed at Ontario Tech University, and if possible, the larger community.

The Advanced Manufacturing Research Center (AMRC) aims to bring together a diverse and multidisciplinary community of researchers who are interested in studying the today's and future;s needs of manufacturing systems including the needs of manufacturing sectors in the aspects of **P**redictivity, **A**gility, **R**econfigurability, **S**ustainability, and **I**ntelligence (**PARSI**). PARSI demonstrates the five research angles of the advanced manufacturing research center (Figure 1).

Figure 1 – The five research angles of PARSI Advanced Manufacturing Research Center

Concept development, modeling, developing methodologies, and work with industries to advance the technology readiness level of the developed solutions are the four radial depths of the research work at PARSI-AMRC. The five research angles in advanced manufacturing research center are define based on the most crucial challenges in manufacturing and relevant industries in Canada and worldwide. PARSI's five angles and their combination are uniquely pictured at AMRC. The angles are described as follows.

Predictivity: Inclusion of the four aspects of metrology and inspection, maintenance planning, multi-physics simulation, and digital twin philosophy allows AMRC research to predict the health, and the sources of uncertainties in the manufacturing units, and processes.

Agility: Developing agile manufacturing units and systems with the novel aspects of the fifth industrial revolution to put "human in the loop" in the most efficient way, in combination with applications of the traditional cyber-physical solutions, autonomous technologies, robots and collaborative robots to create the most agile manufacturing solutions is the focus of this angle at AMRC.

Reconfigurability: Developing the manufacturing solutions at AMRC with the capabilities for reconfiguration including the parameters of self-adaptation, self-calibration, and self-adjustment aim toward the best ways in use of the available resources with their ultimate efficiencies.

Sustainability: Design and Manufacturing are merged at AMRC for the most sustainable development of the products. The efficiency of the Design for Manufacturing, topology optimization, and advanced materials supports the sustainability of the manufacturing process to maintain the required design specifications, features, and tolerances, consumption of energy, and impact with the environment at minimum waste.

Intelligence: AMRC supports the Canadian and worldwide industries to develop and implement intelligent manufacturing systems by developing cyber-physical solutions with a combination of data sensory, connectivity, data analytics, and intelligent decision-making manufacturing features.

3.1.1. Impacts on the Industries and Society

The university's commitment to advancing the field is further demonstrated by the skills and background of the hired Faculty members over a decade to create a team of experts in product design and manufacturing. The objective of PARSI-AMRC is to create a strong support to our partners, Canadian industries, and to our community for better and more efficient design and development of products, machines, processes, and technologies.

The two main niche areas that PARSI-AMRC is aim to focus are advanced design and manufacturing of parts, components, and assemblies in Battery and Fuel Cell Electric Vehicles (B-FC EV), and Small Modular Reactor (SMR) technologies. Vehicle designers rely on manufacturability principles to create structure and packaging of the components with the goal of weight reduction and improving stiffness for more fuel-efficient, more environmentally friendly, faster, and safer to use vehicles. By understanding the manufacturing constraints and limitations, designers can optimize the shape and configuration of the parts to minimize manufacturing costs, waste, and time. Similar research and development also can be considered in power generation industries. By optimizing the structure of the vehicles, designers can improve the vehicle handling, drivability, and performance while also improving its fuel economy, or the battery range in the case of electric vehicles.

In sports, the optimization and customization of design of equipment and its manufacturability plays a critical role in helping athletes with their performance. By reducing weight and improving the performance using new materials, athletes can run faster, jump higher, and throw farther. This is particularly important in sports such as cycling, skiing, and swimming, where the efficiency of the tools can make a significant difference in a race. Research, innovation, and design of customized sport equipment aligned with the current research and development at Ontario Tech in additive manufacturing and rapid fabrication has a great potential as a niche area.

In the construction industry, the manufacturability of many components can be researched using the methodologies developed at PARSI-AMRC. Considering the recent applications of 3D printing and additive manufacturing principles in construction, a significant contribution to the construction industries can be pictured in a near future.

These research areas have significant economic and environmental benefits, as more energy-efficient products can reduce the cost of services to the community and minimize the carbon footprint of the relevant industries.

Research in the five core angles and applications allow developing adaptive designs and product development for a wide range of engineering applications to improve their performance, efficiency,

environment friendliness, and safety. The ultimate goal of PARSI-AMRC is to advance scientific knowledge in developing and evaluating products in various complexities with the best use of the resources. The outcomes of the conducted research and developed innovative technologies will transform the future of Durham region, Ontario, and Canada.

Ontario Tech University is a leader in product design and manufacturing engineering research, as evidenced by its excellence of the researchers in the field and state-of-the-art research facilities. Manufacturing engineering program has been the first engineering program at Ontario Tech with the objective to respond to the needs of the Canadian industries in various sectors.

3.1.2. Vision

Our vision is to be a world-class center for research and innovation in the field of advanced manufacturing toward better design and maintenance of efficient and environment friendly products, machines, processes, and equipment.

3.1.3. Mission

AMRC's mission is to drive the development and advancement of cutting-edge technologies and practices that enhance the advanced manufacturing research angles in four levels of conceptualization, modeling, methodology development, and technology readiness improvement in various fields such as Battery and Fuel Cell Electric Vehicles, autonomous vehicles including air and road transportation, sport, defense, and energy sectors. By leveraging the expertise in engineering design, manufacturing, materials, adaptation, and body and surface development research, we seek to push the boundaries of what is possible and deliver innovative solutions that address real-world challenges.

3.2. Describe how the entity will foster synergistic collaboration that would not otherwise be possible, and how the entity would facilitate research among scholars within the university and in the wider community.

The Advanced Manufacturing Research Center will provide a platform for researchers from different disciplines and backgrounds to come together and collaborate on cutting-edge research that would not be possible otherwise. By fostering synergistic collaboration, the center will enable researchers to pool their knowledge, expertise, and resources to tackle complex problems that require a multidisciplinary approach.

Within the university, AMRC will facilitate research among scholars by providing access to the state-of-the-art research facilities and equipment, as well as by organizing workshops, seminars, and other events that bring together researchers from different departments and faculties. The center will also support graduate and postdoctoral research programs that enable students and early-career researchers to gain hands-on experience in advanced manufacturing research.

Beyond the university, AMRC will foster research collaboration with scholars in the wider community through partnerships with industry, government agencies, and other academic institutions. AMRC will provide a forum for researchers to share their findings, exchange ideas, and collaborate on research projects that have real-world applications. By bringing together researchers from diverse backgrounds and sectors, the research center will facilitate the translation of research findings into practical solutions that can have a positive impact on the society.

The Advanced Manufacturing Research Center will be uniquely positioned to foster innovation and advance knowledge in the angles of manufacturing Predictivity, Agility, Reconfigurability, Sustainability, and Intelligence. The Institute will bring together a collection of unique expertise and will have access to state-of-the-art research facilities that are among the most sophisticated in the world. This combination of expertise and resources makes the center a reference for researchers from all over the world to collaborate and conduct cutting-edge research. With its world-class facilities and expertise, the Institute will push the boundaries of what is possible in engineering design and manufacturing with resource adaptation research, enabling researchers to deliver innovative solutions that address real-world challenges. The AMRC's focus on practical solutions that have real-world impact will also help to attract researchers and collaborators who are passionate about making a positive difference in the world.

Overall, the Advanced Manufacturing Research Center will be a hub of innovation and collaboration that will bring together the best and brightest researchers from around the world to advance the frontiers of design and manufacturing engineering.

4. Research Mandate

4.1. Outline the type of research to be performed and identify the scope of activities envisaged.

The Advanced Manufacturing Research Center is aimed on better design and manufacturing of products considering the five angles of Predictivity, Agility, Reconfigurability, Sustainability, and Intelligence. The research projects at AMRC will be conducted in four radial levels of Conceptualization, Modeling, Methodology development, and Technology Readiness Level Improvement. The combination of these four levels in five angles of PARSI research creates 20 research themes at AMRC. This combination of research levels- angles is graphically demonstrated in Figure 2.

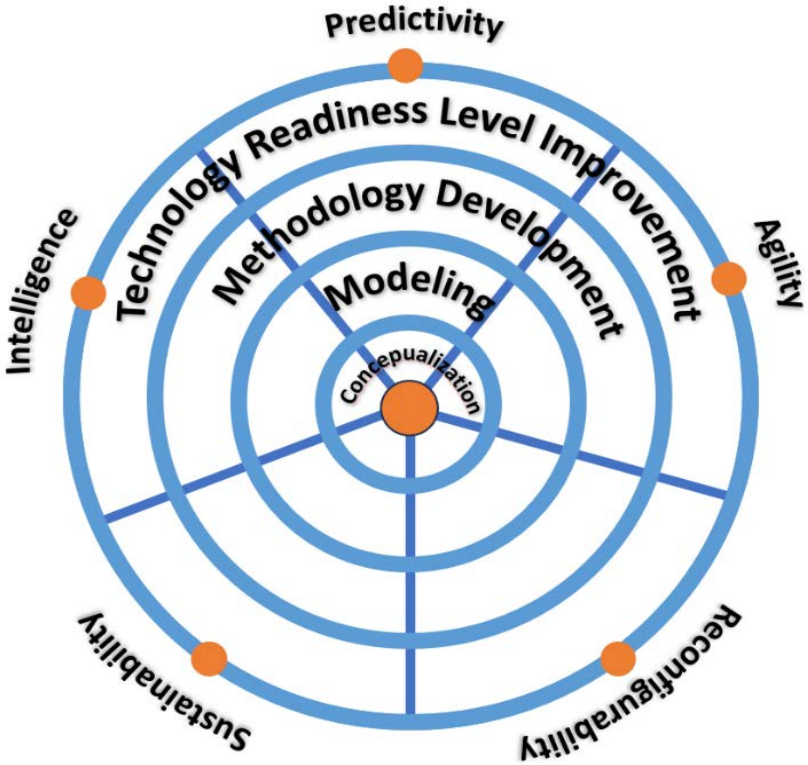


Figure 2 – The AMRC's 20 research themes as the combination of research radial levels- angles

The Radius-Angle theme chart in Figure 3-a presents a systematic approach at AMRC aligned with its vision and mission. The chart presented in Figure 3-a is used to define what specific research themes need to be completed to achieve a level of research maturity. As an example, Figure 3-b presents the example of a manufacturing research targeting and model development for predictivity, methodology development for agility, and reconfigurability, full technology development for sustainability, and a conceptual level of intelligence.

The approach of using these 20 research themes at AMRC will be used in developing proposals, defining research projects/programs, management of the projects, scheduling, allocation of the resources, and research maturity assessment.

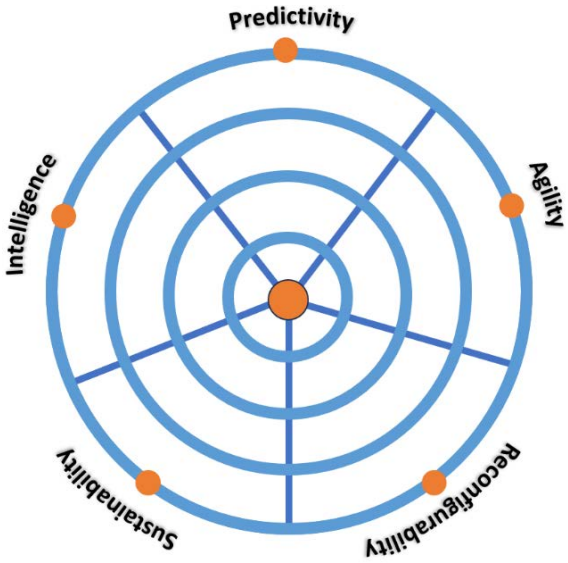


Figure 3-a- Research Radios-Angle theme chart

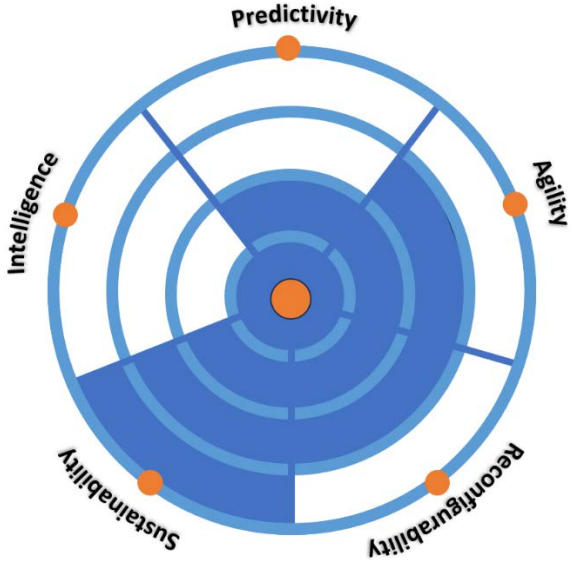


Figure 3-b- Example of a manufacturing research target at AMRC

Figure 3- Research themes at AMRC

4.1.1. Review and Revision

The four radial levels of conceptualization, modeling, methodology development, and technology readiness improvement are the essential research levels at AMRC and are defined as the core components of the mission in this research center. These four levels of research comprehensively cover the entire range of research envisioned for AMRC.

The five research angles of Predictivity, Agility, Reconfigurability, Sustainability, and Intelligence are selected based on the needs of today and future of industries in Canada and worldwide. However, these five angles can be reviewed and revised every five years to keep the research themes at AMRC always update and align with the needs to the society.

4.2. Explain how the research activities align with Ontario Tech University's Strategic Research Plan.

Ontario Tech University's strategic research plan aims to foster interdisciplinary research collaborations that address complex global needs of the society with full consideration of environmental impacts of the technologies. Tech with conscious is one of the main perspectives in developing Ontario Tech research which is also inherent in vision and mission of AMRC.

Advanced Manufacturing research is one of the key subjects in Ontario Tech's strategic research plan. In addition, the Ontario Tech's strategic research plan is used directly to define the strategic research applications/fields at AMRC. These research applications/fields are defined currently as, battery and fuel cell electric vehicles, autonomous vehicles including air and road transportation, energy sectors including the developments of Small Modular Reactors, sport tools and equipment, and defense.

By leveraging the expertise in engineering design, advanced manufacturing, and material, AMRC will conduct cross-disciplinary research that brings together expertise to address the challenges in various industries and sectors that are vital to the economy, security, and global competitiveness of Canada. Moreover, AMRC's main mission is to develop innovative solutions to enhance the safety, performance, and efficiency of various industries, including automotive, renewable energy production, and aerospace. These research activities are aligned well with Ontario Tech University's strategic research priorities, which include energy and sustainability.

Furthermore, the AMRC's research mandate involves collaboration with industry partners, government agencies, and other academic institutions, which provides opportunities for knowledge transfer and contributes to the development of a skilled workforce. This approach aligns well with Ontario Tech University's commitment to fostering partnerships that support economic and social development.

4.2.1. The Importance of Advanced Manufacturing Research at Ontario Tech University

Ontario Tech University is an innovation-oriented Canadian research-intensive university that advances the discovery and application of knowledge with its industry partners to accelerate economic growth, technology advancement and regional development. In the area of Advanced and Intelligent Manufacturing, and Institutional Research Priority, it merges the multidisciplinary talent of its world-class researchers with globally leading research facilities to support the commercialization of innovation at the pace of industry. Its team of industry veterans, coupled with faculty members experienced in industry partnerships, have a demonstrated track record of working with Canadian based businesses to bring new products to Market.

4.2.2. The Importance of Advanced Manufacturing Research Worldwide

Research at Ontario Tech University has always positioned itself as an important contributor to the advanced manufacturing space. In the current climate of global economic uncertainty, restoring and extending Canada's manufacturing capacity is a key to securing the country's economic future. Considering its geographic location and research potentials, Ontario Tech prioritizes supporting the next manufacturing generation of Canadian in innovation, science, and economic development. Disruptive and emerging technologies are creating new opportunities to expand these contributions. The integration of intelligent and autonomous technologies that utilize artificial intelligence and machine learning for advanced manufacturing is a research priority for the university, allowing us to build on current research

strengths to establish itself as a leader in intelligent manufacturing and materials innovation. This is a respond to the forecasted demands from the industries in moving towards the objectives of the fourth and fifth industrial revolutions.

Working collaborative with our extensive network of industry partners, our researchers are recognized leaders in manufacturing engineering as well as the synthesis and characterization of materials. Applications of this award-winning research have led to the development of sustainable and environmentally friendly approaches and techniques for manufacturing processes, product development and energy systems. This multidisciplinary research involving both scientists and engineers is transforming manufacturing processes in a range of sectors of the economy in Canada and abroad. Our graduate students are important contributors to this research strength. Our target areas in Advanced Manufacturing include:

- Industry 4.0 and 5.0 revolutions
- Cyber physical systems in manufacturing
- Digital Manufacturing
- Design for manufacturing
- IOT – software and devices
- Data Analytics
- Vision Systems Robotics/Smart Machines
- Additive/Subtractive Manufacturing
- Smart Materials
- Opto-electronic and Energy material
- Micro-electronics.

4.2.3. The Target Applications and Industerial Sectors

Additionally, establishing AMRC is of national importance as it would contribute to the development of advanced technologies in design and manufacturing in the following various industries and sectors:

1- Aerospace Industry: The aerospace industry is a key driver of innovation and economic growth, with significant contributions to the Canada's GDP, exports, and job creation. Developing more efficient, safe, and sustainable aircrafts and spacecrafts is crucial to maintaining the competitiveness of the aerospace industry. AMRC will contribute to this goal by conducting research on advanced design for manufacturing, manufacturability of new materials, and PARSI angles in production systems that improve the performance and reduce the environmental impacts of aircraft and spacecraft.

2- Transportation Sector: Manufacturing also plays a critical role in the transportation sector, including road, rail, and maritime transport. Improving the design for manufacturing, vehicle weight reduction methodologies, and manufacturing efficiency of vehicles and ships can reduce fuel consumption, emissions, and operating costs, while increasing safety and comfort for passengers. AMRC will contribute to this goal by developing innovative technologies and designs that reduce production cost and waste and improve performance of vehicles and ships.

3- Renewable Energy: The development of renewable energy is crucial to reducing dependence on fossil fuels and mitigating climate change. Developing many of the crucial parts and components employed in renewable energy generation industries such as turbines are impellers are

geometrically and metallurgically very complex. AMRC aims to conduct fundamental research on design, manufacturing, and repair of parts, machines, and equipment needed for developing clean energy systems with the objective of reducing manufacturing time and cost and improving the performance and efficiency.

4- National Security: Advanced Manufacturing is also critical to national security, particularly in the development of advanced military aircraft, missiles, and drones. AMRC contributes to support national defense by conducting research on advanced manufacturing and material processing that enhance the performance and survivability of military aircraft and weapons systems under extreme working conditions.

5- Sport and Canadian Athletics: Customization and optimization in design of sport tools and equipment based on the exact specifications needed by the individual athletics is highly critical in their performance. Weight reduction and improving the performance of the equipment is highly constrained due to the limitations in manufacturability. This is particularly important in sports such as cycling, skiing, and swimming, where the efficiency of the tools can make a significant difference in a race. AMRC aims to lead research in design for manufacturability of parts, machines, and equipment needed for better performance of Canadian athletics in national and international competitions.

Overall, the Advanced Manufacturing Research Center is a valuable contributor to Ontario Tech University's strategic research plan as it embodies the interdisciplinary approach and focus on tackling the Predictivity, Agility, Reconfigurability, Sustainability, and Intelligence challenges in advanced manufacturing that is central to the university's research priorities.

4.3. Provide evidence for the long-term sustainability of the entity, including research activities that go beyond collaboration on a single project.

The Advanced Manufacturing Research Center is proposed by world-renowned researchers who are experts in their respective fields. Their expertise has earned them funding from government agencies and industry partners, amounting to more than $6.5 million over the last five years since 2018. The 8 founders of this research center have also published a remarkable number of research papers, including over 310 journal articles, 415 referred conference articles, 23 book chapters, and 6 books.

The proposal for AMRC is based on the solid foundation of the proposers' significant contributions to the five advanced manufacturing research directions, namely Predictivity, Agility, Reconfigurability, Sustainability, and Intelligence. The founders have established a track record of success that will serve as the backbone of AMRC. Additionally, the research center will benefit from strategic collaborations that the proposers have established with both national and international partners, including Ontario Power Generation, General Motors Canada, Honda Canada, Magna International, and Bombardier Aerospace among others.

With the support of the proposers and their partners, AMRC will be well-positioned to advance the advanced manufacturing research. The research center will leverage the knowledge and expertise of its founders to undertake groundbreaking research and innovation, addressing critical global challenges.

5. Key Research Facilities

The Advanced Manufacturing Research Center will rely on the following existing research labs with their research infrastructures as the foundation for conducting its diverse research activities:

1- Advanced Digital Manufacturing and Advanced Digital Metrology Laboratories (AD2M Labs)
2- Automotive Center of Excellence (ACE) prototyping and fabrication facilities
3- Centre for Characterization of Polymers and Cellular Polymeric Composites
4- Machining Research Laboratory (MRL)
5- Micro-Machining Laboratory
6- Silicon Hall: Micro/Nano Fabrication Facility
7- Eco-friendly Center of Circular Advanced Materials and Additive Manufacturing (ECAM)

The available research infrastructures and objectives in these laboratories are briefly presented here.

5-1 available research infrastructure and equipment

Advanced Digital Design, Manufacturing, and Metrology Laboratories (AD2M Labs)

The Advanced Digital Design, Manufacturing, and Metrology Laboratories (AD2Mlabs) at Ontario Tech University contribute to variety of national and international projects in collaboration with industries, research centers, and universities (www.AD2Mlabs.com). The research areas at AD2M Labs include digital design and manufacturing, precision manufacturing, manufacturing data collection and analytics, intelligent manufacturing systems, and advanced manufacturing technologies including digital metrology, and 3D printing.

- ***Advanced Digital Design Laboratory*** includes Multi-physics Simulation, CAD/CAM, Topology Optimization and Generative Design, digital twin simulation platforms, various digital design software and hardware workstations.
- ***Advanced Digital Manufacturing Laboratory*** is equipped with a wide spectrum of CAD/CAM/CAE commercial and lab proprietary software packages, super-computing hardware setup, multiple Fused Filament Fabrication machines for polymers, and Selective Laser Sintering for steel, aluminum, and titanium additive manufacturing, and its exclusively developed variable-layer 3D Printer, and layer-less DLP printer with the corresponding custom software packages.
- ***Advanced digital Metrology Laboratory*** is equipped with multi-scale digital metrology and digital inspection systems, laser scanners, tactile probing, surface topography (micro scale), long range laser tracker (up to 40 m). A variety of Laser scanners and other commercially available and customized design lab proprietary optical sensors, contact metrology probs and corresponding robotic arms, Laser tracker, 3D surface topography microscope, on-machine measurement tactile probs, and a variety of metrology software tools.

Automotive Center of Excellence (ACE) Prototyping and Fabrication Facilities

Ontario Tech's ACE Research Facility is one of the leading product development and advanced manufacturing centers in Canada. This research and development facility is commercially available to customers who want to bring their ideas into a proof of concept and make them ready for market. In fact, over 95% of ACE's operational revenue comes from its commercial research partnerships from over 60 different industry different clients each year. Clients include manufacturers of all descriptions, start-up

companies and researchers in Canada and from around the world. The entire facility, or specific chambers, can be rented at a globally competitive hourly rate. Perhaps more importantly, industry partners have access to ACE's 20+ staff of industry experts that work with clients to develop product validation and test plans, along with engineering support to prototype and improve upon existing designs. ACE is equipped with a machine shop and manufacturing infrastructure to fabricate research related parts and components and for prototype development.

Centre for Characterization of Polymers and Cellular Polymeric Composites (CCPCPC)

Available equipment and instrumentation resources at Centre for Characterization of Polymers and Cellular Polymeric Composites (CCPCPC) include 3D Micro Computer Tomography SkyScan 1172 from Bruker, Thermogravimetric Analyzer (TGA), Differential Scanning Calorimeter (DSC), Thermomechanical Analyzer (TMA), Dynamic Mechanical Analyzer (DMA), ARES Rheometer, Keyence Digital Microscope, Single Screw Extruder, Twin Screw Extruder, Ultimaker 3D printer, dual print head, & Ultimaker Cura 3D printing software, Filabot EX2 Filament Extruder, Airpath, & Spooler, Water Jacketed CO2 Incubator chamber (Thermo Scientific, Forma Series 3), Rotational Foam Molding Experimental Setup, Electrospinning Experimental Setup (three units), Fume Hood, Carver Heated plates press, Microtrac particle analyzer, Avery precision balance, and Microtome.

Machining Research Lab (MRL)

Machining Research Lab is a multidisciplinary lab, conducting research on additive, subtractive and hybrid of additive and subtractive manufacturing. MRL is equipped with all machining facilities including advanced Computer Numerical Control (CNC) machine center, machining force dynamometer, machining tools and fixtures, and Scanning Electron Microscope (SEM). (https://mrlab.ca)

Micro-Machining Laboratory

Micro-Machining Laboratory is equipped with micromachining facilities including electrochemical processes and Spark Assisted Chemical Engraving (SACE) machine.

Silicon Hall: Micro/Nano Fabrication Facility

Silicon Hall is focused on Micro/Nano Fabrication and surface processing. It is equipped with variety of equipment for laser processing of the part surfaces and micro/nano fabrication. (https://siliconhall.info/)

Eco-friendly Center of Circular Advanced Materials and Additive Manufacturing (ECAM)

E-CAM focuses on developing innovative and environmentally sustainable materials and methodologies to create sustainable, recyclable, and circular products for point-of-need additive manufacturing of parts, helping to address acute AM supply chain and climate change challenges, accelerate the development of in-house expertise, and empower engineers to design more game-changing parts for innovative applications. To this end, the mission of the E-CAM research group is to bridge low-cost additive manufacturing with materials science, nanotechnology, sustainability, and circular economy, through advanced computational and experimental techniques. Bioaugmentation of circular materials, development of recyclable and sustainable feedstock/products, conducting methodological investigations evaluating how processing and material interaction affect final properties, and implanting post-surface

treatment to enhance performance outcomes for end-use applications are the main focus of the E-CAM. The Lab's commitment to utilizing sustainable and recyclable materials in conjunction with circular manufacturing practices forms its core identity. At E-CAM, the production of advanced materials and the pursuit of environmentally-friendly manufacturing practices coexist. Circularity is at the core of everything we do, as part of our net-zero journey. ECAM is equipped with a variety of desktop and customized 3D printers, Extruders, Shredder, metallography equipment, and advanced characterization facilities like XRD.

6. Student Involvement and Training

6.1. Background

The manufacturing program at Ontario Tech was established in 2003 as it first engineering program, and the fourth manufacturing engineering program in Canada when there were only three other accredited manufacturing programs running across Canada (Calgary, Manitoba, and McMaster). The Manufacturing Engineering curriculum at Ontario Tech University provides students with a solid grounding in fundamentals, with significant content in engineering sciences, engineering design and manufacturing content. The Manufacturing Engineering program provides students with a general background of engineering enhanced by detailed knowledge and skills required for manufacturing industry and its related industrial sectors.

Manufacturing Engineering is a vital field of study, as this industry converges a wide range of concepts such as Mechanical Engineering, Electrical Engineering, system design and analysis, and scheduling and management. Hence, to cope with future demands of industry, our Manufacturing Engineering program is designed in close connection with other engineering disciplines. It has a strong mechanical engineering foundation, which is further enhanced by some elements of math, electrical and software engineering (mainly 1st and 2nd year courses). However, the focal point of this program is manufacturing, so the students are offered a wide range of core courses purposefully designed for introducing different aspects of Manufacturing Engineering and related areas to the students (mainly 3rd and 4th year courses).

Manufacturing engineering is dynamically changing, and it has been our mandate to update our program according to the needs of industry. More technical elective courses are being developed to fulfill this need.

Engineering design and manufacturing cannot be decoupled in today’s industries. Our programs are developed based on the need to merge and conduct design and manufacturing concurrently. A student gets involved in this paradigm of thinking from their second year and through every consecutive year they will experience it through their courses, culminating with their last year capstone design project.

The faculty members in Manufacturing Engineering are conducting leading edge research in key areas such as high-speed machining, machining difficult-to-cut materials, finite element modeling of manufacturing processes, surface integrity, additive manufacturing, coordinate metrology, nano and micro fabrication, industry 4.0, digital manufacturing, Artificial Intelligence, and multi-objective optimization in manufacturing process control, advanced materials manufacturing etc.

6.2. Involvement of Students in AMRC

The level and type of involvement of undergraduate or graduate students in the activities of advanced manufacturing research will depend on the specific research projects and programs undertaken by the

AMRC. However, it is expected that undergraduate and graduate students will have the opportunity to participate in research activities and projects as well as training programs designed to enhance their skills and knowledge in advanced manufacturing.

AMRC will provide unique research and training opportunities for students at all levels. Undergraduate students may participate in research projects as part of their coursework or through internship programs, allowing them to gain valuable hands-on experience in the field. Graduate students may have the opportunity to participate in more advanced research projects, assisting in the development of cutting-edge technologies and contributing to the advancement of the field.

AMRC will also offer specialized training programs for students, including workshops, seminars, and short courses, designed to enhance their knowledge and skills in the field. These training programs may cover topics such as design for manufacturing, subtractive manufacturing, additive manufacturing, design of tools and fixtures, design of dies and molds, weld design and weld process planning, robotic and automation, developing assembly lines, production line analyses, optimization, and customization, end more. The training programs will provide students with the skills and knowledge they need to be successful in their future careers, whether in academia or industry.

In addition to research and training opportunities for undergraduate and graduate students, Advanced Manufacturing Research Center may offer professional industrial courses to professionals already working in various manufacturing fields. AMRC also develops partnership and teaching and learning agreements with the national and international universities, institutions, and research center in various areas and applications of advanced manufacturing technologies that allows researchers and students mobility and collaboration programs.

These professional industrial courses would be designed to provide advanced training and development opportunities for professionals in industry, government agencies, and other organizations involved in the field. By participating in these courses, professionals would be able to stay up-to-date with the latest developments in the field and enhance their skills and knowledge, improving their ability to contribute to their organizations and the industry as a whole. The courses may also provide opportunities for professionals to network with other experts in the field, sharing knowledge and ideas and building valuable connections.

Professional industrial courses offered by AMRC would be developed and taught by experts in the field, including the founders and collaborators. These courses would be tailored to the needs of industry professionals, providing practical knowledge and skills that can be applied directly in the workplace.

Overall, the Advanced Manufacturing Research Center will provide unique and valuable research and training opportunities for undergraduate and graduate students as well as for professionals working in the industry. These opportunities will allow the trainees to gain hands-on experience in cutting-edge research and technology development, as well as enhance their skills and knowledge in the various directions of advanced manufacturing systems.

7. Research Dissemination and Service Plan

Advanced Manufacturing Research Center will have a strong focus on dissemination of research and the provision of service within Ontario Tech University and to the outside community. The followings are some of the unique plans that will be implemented:

1. Dissemination of Research: The institute will disseminate research through various channels such as peer-reviewed journals, conference presentations, and workshops. The institute will also create a comprehensive website that will provide information on research projects, publications, and events. This website will be regularly updated with the latest research findings and outcomes.

2. Service Plan: The Advanced Manufacturing Research Center has a comprehensive service plan that involves developing various programs to serve and impact the community. For instance, the institute plans to organize community outreach programs aimed at providing information and resources on resilient and sustainable manufacturing systems to local communities.

3. Additionally, AMRC intends to partner with industry leaders, government agencies, and non-profit organizations to offer technical expertise and support for various projects. This collaboration will help to promote the AMRC's research, as well as foster innovation and sustainable development practices.

4. Furthermore, through its extensive network, AMRC will be in a position to provide technical expertise, research findings, and other resources to policymakers. This information will be instrumental in helping policymakers to make informed decisions regarding policy development and implementation in areas such as sustainable design, manufacturing, and social-economic modeling of manufacturing and production systems.

8. Resource Requirements

8.1 Physical Requirements

Advanced Manufacturing Research Center will utilize the space currently available to its founding members. However, a central office will be necessary to coordinate activities and hold meetings with potential clients and stakeholders. The location of this office in close proximity to the research infrastructure is crucial, and thus an office in the ACE building would be ideal for this purpose.

8.2 Staffing Requirements

As the Advanced Manufacturing Research Center is built upon existing faculty collaborations and labs, a key area of growth is to acquire a grant writer who can assist with ongoing projects as well as proposals in the development stage. Thus, the primary goal in the first few years is to establish a reliable funding source for hiring a staff member. To achieve this objective, the proposers will be encouraged to include funding for this position in their grant applications.

9. Budget

The detailed budget projection for the first five years of Advanced Manufacturing Research Center including all sources of income and expected expenses and disbursements are presented in attached excel file.

Short Biography and Curricula Vitae of the Founding Members

Dr. Ahmad Barari, PhD, Peng

Professor

Dr. Ahmad Barari is a Professor in Department of Mechanical and Manufacturing Engineering at Ontario Tech University. Dr. Barari has been primarily involved in research and development in engineering design and advanced manufacturing technologies for over 25 years. He has a successful track of research that has attracted more than 50 sources of funds from the federal / provincial organizations and industrial sectors. His excellent experience in engineering education has led to the development and delivery 32 Mechanical and Manufacturing Engineering courses at graduate and undergraduate levels. Professor Barari has over 200 referred and indexed publications in highly ranked periodic journals and conference proceedings.

He has been in editorial board of various high prestige journals and proceedings. He organized, chaired, or administrated over 30 academic national or international events, conference topics, invited sessions, and seminars. Dr. Barari serves currently as vice-chair academic Technical Committee on Manufacturing Plant Control and the chair of Intelligent Manufacturing Systems Working Group in International Federation of Automatic Control (IFAC). Dr. Barari is also a member of several committees and project groups at the American Society of Mechanical Engineering (ASME) including the ASME Model-Based Enterprise Standards Committee (MBE SC), and ASME Y14.46, Product Definition for Additive Manufacturing.

Dr. Barari is the director of the Advanced Digital Manufacturing and Advanced Digital Metrology labs (AD2Mlabs) at Ontario Tech University (www.AD2Mlabs.com). The labs contribute to many national and international projects in collaboration with industries, research centers, and universities. The research is focused on digital design and manufacturing, precision manufacturing, manufacturing data collection and analytics, intelligent manufacturing systems, and advanced manufacturing technologies including digital metrology and 3D printing.

Dr. Ghaus Rizvi, PhD, Peng

Professor

Dr. Ghaus Rizvi is a professor in the Department of Mechanical and Manufacturing Engineering at Ontario Tech University, Oshawa, Canada. His research interests include advanced manufacturing, biomaterials and tissue scaffolds, development of sensor materials, polymer and composite processing, 'Green' composites, novel composite materials, nano materials, coloration of plastics, wood-plastic composites, and materials characterization. He has over 150 manuscripts in peer reviewed journals and conferences. He has supervised many postdoctoral fellows, PhD students, Master students, undergraduate research students, and more than 140 undergraduate students on various capstone projects. His students have presented papers in many international conferences in Europe, Asia, Africa and America.

Dr. Rizvi is a co-director of the Centre for Characterization of Polymers and Cellular Polymeric Composites (CCPCPC).

Dr. Remon Pop-Iliev, PhD, PEng

Professor

Professor Remon Pop-Iliev attracted significant research funding (> $6.15 million) from industrial and government sources. His research program has been funded by NSERC, OPG, GMCL, CFI, AUTO21, APC, CDEN, ORF and OCE through individual and collaborative research projects. He has over 150 archival journal and conference referred publications and 63 keynote speeches, invited lectures and conference presentations. He trained in his research group multiple PDFs, PhD, MASc, MEng, undergraduate RAs, and over 200 undergraduate students. He has developed innovative polymer processing technologies for the manufacture of polyolefin foams and foamed composites blown by environmentally safe chemical blowing agents. He is an expert in processing polymeric foams and composites using chemical and physical blowing agents, especially in the areas of foaming in rotational molding, compression molding, and polymer extrusion. He has pioneered and patented a technology that utilizes polypropylene in single-charge integral-skin rotational foam molding. Also, he developed and patented a novel polymer processing technology referred to as Rapid Rotational Foam Molding (RRFM). He has further developed the very first processing technology enabling the use of physical blowing agents for the manufacture of functionally graded cellular polymeric composites utilizing RRFM.

Dr. Pop-Iliev is the co-director of the Characterization of Polymers and Cellular Polymeric Composites (CCPCPC) Laboratory.

Dr. Hossam Kishawy, PhD, Peng

Professor

Dr. Kishawy is the Dean of the Faculty of Engineering and Applied science and a professor in Department of Mechanical and Manufacturing Engineering at Ontario Tech University. His research interests cover several aspects of advanced manufacturing and sustainable manufacturing processes, environmentally friendly processes, optimization, design and stress analysis. His recent book entitled "Machining Difficult-to-Cut Materials: Basic Principles and Challenges" (recently published by Springer) presents the state-of-the-art research related to the machining of difficult-to-cut materials and his findings in the area of machining mechanics, surface quality and integrity. Together with his research group, he has patents and over 200 publications in reputable journals, conferences and book chapters. He is a Fellow of the ASME, CSME and EIC, senior member of the SME and a member of the association of Ontario Professional Engineers.

Dr. Amirkianoosh Kiani, PhD, Peng

Associate Professor

Dr. Amirkianoosh Kiani joined Ontario Tech University as a faculty member in the Department of Mechanical and Manufacturing Engineering in July 2017, specializing in advanced manufacturing and pulsed-laser materials processing. His significant contributions have propelled the development of laser-based methodologies for the synthesis of quantum-nanofibrous and 3D nanostructured materials. These advancements are pivotal for the next generation of opto-electronic applications and quantum energy storage devices, offering precise control over functionality and improved electrochemical properties. Under Dr. Kiani's leadership, the "Silicon Hall: Micro/Nano Fabrication Facility" was established at Ontario Tech, serving as a nexus for collaboration with industry partners on cutting-edge projects funded by federal, provincial, and private sectors. Prior to his current role, Dr. Kiani was an Assistant Professor in the Department of Mechanical Engineering at the University of New Brunswick, where he served from 2014 to 2017. His research there was centered on laser bio-nanofabrication, contributing to the evolution of academic programs in laser materials processing and photonics manufacturing systems. Dr. Kiani's research has been disseminated widely through many peer-reviewed academic publications, including contributions to leading journals such as Nature Scientific Reports, iScience, Journal of Energy Storage, Sensors & Actuators B, and Applied Surface Science, reflecting his impactful work in the field of advanced manufacturing and nano materials.

Dr. Sayyed Ali Hosseini, PhD, Peng

Associate Professor

Dr. Sayyed Ali Hosseini is an Assistant Professor in the Faculty of Engineering and Applied Science at Ontario Tech University. His research area covers tool design, simulation of machining processes, material modelling, and machining difficult-to-cut materials. He is a member of SME, ASME, CSME and a registered professional engineer in Ontario, Canada. Examples of current research projects include Design of Variable Microgeometry Milling Inserts for Machining Hardened Steels (Joint project with Sandvik Cormorant), Sustainable Machining Using Micro-textured Nano-structured Coated Cutting Tools, and Additive Manufacturing Process Optimization and Planning. He is currently the vice chair of CSME Manufacturing Technical Committee.

Dr. Jana Abou-Ziki, PhD, Peng

Assistant Professor

Dr. Abou Ziki is an Assistant Professor in the Department of Mechanical and Manufacturing Engineering at Ontario Tech University, Canada. She obtained her Bachelor degree in Mechatronics Engineering from Rafik Hariri University in Lebanon in 2009. Following that, she obtained her PhD in Mechanical Engineering in 2014 from Concordia University, Canada. The significance of her work is evident by the number of papers she published and awards she recieved. Dr. Abou Ziki's research at Ontario Tech focuses on developing non-conventional manufacturing techniques, both additive and subtractive, to make them more suited for rapid prototyping of parts made of different materials.

With the high competition existing in the market nowadays, the rapidly increasing customer demand and the high-quality expectations require advanced and precise yet flexible manufacturing processes. There is rise in demand for personalized products, something that requires developing processes that are flexible enough to meet this demand at a fast speed while offering high quality and still be profitable to the industry. Making these processes smarter and more accessible will be a game changer. Dr. Abou Ziki's research program builds on her experience and expertise while developing technologies, both additive and subtractive, to enhance the manufacturing throughput and flexibility as well as quality and speed of manufacturing. Her team's recent research in the field of electroforming, which is an additive manufacturing process, has succeeded in designing molds that allow forming 2.5D and potentially 3D metal parts. Prior to that only 2D parts were possible to be manufactured with this process. Furthermore, her work in the field of micromachining nonconductive materials allowed developing machine learning algorithms an electrochemical technique called SACE to make it a smarter rapid prototyping process. Dr. Abou Ziki is also interested in developing smart hybrid manufacturing processes which cultivate the advantages of single processes. Functionalizing surfaces during machining is also an area of interest to her as this reduces the extra step of post processing required to impart certain properties on the surface. Dr. Abou Ziki is currently supervising a diverse team of students and her work led to multiple journal papers, conference proceeding publications and conference presentations.

Dr. Ramona Fayazfar, PhD, Peng

Assistant Professor

Dr. Ramona (Haniyeh) Fayazfar, Ph.D., P.Eng., is an Assistant Professor at the Department of Mechanical and Manufacturing Engineering at Ontario Tech University. She is the director of the Eco-Friendly Center of Circular Advanced Materials and Additive Manufacturing (E-CAM). She holds an affiliate associate graduate faculty appointment in Materials Science. Dr. Fayazfar holds a Ph.D., MS.C., and B.S.C. with high honors in Material Science and Engineering from the Sharif University of Technology. Before joining Ontario Tech, she was a postdoctoral fellow in the Multi-Scale Additive Manufacturing group at the University of Waterloo.

She has over 20 years of experience in advanced materials, additive manufacturing, sustainable (nano) materials, electrochemistry, and surface engineering. Her current research in her group concentrates on Additive Manufacturing (metals, polymers, ceramics, composites), Bio Augmentation of Circular and Carbon-Negative Materials, Sustainable and Recyclable Materials for 3D Printing, Biomass-filled Biodegradable/Recyclable Polymeric Composites, Surface Engineering, and Advanced Coatings, as well as Sensors and Wearables for Point-of-care Diagnostics and Health Monitoring. She has been awarded the 'Best Research Award' for Innovative Development of Advanced Nanocomposite Materials as a Highly Sensitive Biosensor, presented by the International Research Awards on New Science Inventions 2021. Her research contributions have been recognized by Best Paper/Presentation awards at international materials, manufacturing, and engineering education conferences. She is also a recipient of the First Place Award in recognition of being ranked first among MS.C. and Ph.D. graduates in the Department of Materials Science and Engineering at the Sharif University of Technology.

Research Entity Budget

	Items	Year 1	Year 2	Year 3	Year 4	Year 5	Total	Justification
1. Operatonal Budget								
1.1 Labour Costs - Staff								
	Administrative Assistant	$ -	$ 15,000	$ 35,000	$ 35,000	$ 35,000		Not needed in the first year. After the revenue comes from the secured grants/contracts an admin assiatnt will be hired in year 2 for part time contribution.
	Grant Writer	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000		A grant writer will be hired as part time. Contengient on the amount of funds secured in the first few years, this poistion may be turned into a full time position.
	Benefits (9%)	$ 2,700	$ 4,050	$ 5,850	$ 5,850	$ 5,850		
SUB-TOTAL Labour		**$ 32,700**	**$ 34,050**	**$ 70,850**	**$ 70,850**	**$ 70,850**	**$ 279,300**	
1.2 Labour Costs - Director								
	Teaching Release	$ -	$ -	$ -	$ -	$ -		Not needed.
	Benefits (9%)							Not needed.
SUB-TOTAL LABOUR		**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	
1.3 Research Entity Operating Costs								
	Technical/Consulting Services							Not needed.
	IT Support							Not needed.
	Equipment							Not needed.
	Office Supplies and Services							Not needed since this is provided by the Faculty.
	Staff and Director Travel							Faculty member budget.
	Other (explain)							Not needed.
SUB-TOTAL-Research Entity Operating Costs		**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	
2. Research Networking								
	Seminars and workshops	$ 8,000	$ 10,000	$ 10,000	$ 15,000	$ 20,000	$ 63,000	Annual workshop hosting costs.
	Conference							
	Other (explain)							
SUB-TOTAL-Research Networking		**$ 8,000**	**$ 10,000**	**$ 10,000**	**$ 15,000**	**$ 20,000**	**$ 63,000**	
3. Communications								
	Website	$ 1,500	$ 1,500	$ 1,500	$ 1,500	$ 1,500	$ 7,500	Website creation, hosting, and maintenance fees
	Other (explain)							
		$ 1,500	**$ 1,500**	**$ 1,500**	**$ 1,500**	**$ 1,500**	**$ 7,500**	
4. Knowledge Transfer and Dissemination								
	Publication Costs	0	1000	1000	2000	2000	$6,000	Promotional materials.
	Other (explain)							
SUB-TOTAL		**$ -**	**$ 1,000**	**$ 1,000**	**$ 2,000**	**$ 2,000**	**$ 6,000**	
TOTAL OPERATIONAL BUDGET	**TOTAL OPERATIONAL BUDGET**	**$ 42,200**	**$ 46,550**	**$ 83,350**	**$ 89,350**	**$ 94,350**	**$ 355,800**	
REVENUE								
	VPRI Contributions	$ 25,000	$ 25,000	$ 25,000	$ 25,000	$ 25,000	$ 125,000	
	External Grant Funding (Director)	$ 4,000	$ 4,000	$ 10,000	$ 10,000	$ 12,000	$ 40,000	**Unsecured- Proposed that the director of the centre contribute $4,000 in the first two years towards the centre. This will ramp up to $10,000 in year 3 and $12000 in year 5, based on the flow of grants. This will be built into the grant applications.**
	External Grant Funding (Members)	$ 17,500	$ 17,500	$ 42,000	$ 42,000	$ 49,000	$ 168,000	**Unsecured - Proposed that each of faculty member collaborating in the centre contribute $2,500 each towards centre staff and resourcing. This will ramp up to $6,000 in year 3 and $7,000 in year 5, depening on the flow of grants. This will be built into the grant applications.**
	Industrail Short Courses		$ 10,000	$ 15,000	$ 20,000	$ 25,000	$ 60,000	**Unsecured - the short courses will run in year 2 once the center is established and well connected with industry.**
TOTAL REVENUE		**$ 46,500**	**$ 56,500**	**$ 92,000**	**$ 97,000**	**$ 111,000**	**$ 393,000**	
TOTAL OPERATIONAL BUDGET LESS REVENUE		**$ 4,300**	**$ 9,950**	**$ 8,650**	**$ 7,650**	**$ 16,650**	**$ 37,200**	

ACADEMIC COUNCIL REPORT

SESSION:		**ACTION REQUESTED:**	
Public	☒	**Decision** **Discussion/Direction** **Information**	☒ ☐ ☐
Financial Impact	☒ **Yes** ☐ **No**	**Included in Budget**	☒ **Yes** ☐ **No**
TO:	**Academic Council**		
DATE:	**November 26, 2024**		
FROM:	**Research Committee**		
PRESENTED BY:	**Les Jacobs, Vice-President, Research and Innovation**		
SUBJECT:	**Interdisciplinary Centre for Preventative Nutrition & Technology (ICPNT) (formerly named as Centre for Interdisciplinary Nutrition Research & Innovation (CINRI)**		

COMMITTEE MANDATE:

In accordance with Article 1.4(b) of By-law No. 2 and the Procedures for the Creation of Research Entities, Academic Council makes recommendations to the Board on matters including the establishment of research centres.

Recommendation: The Research Committee, at its November 19, 2024 meeting, reviewed the proposal to create the Interdisciplinary Centre for Preventative Nutrition & Technology (ICPNT) proposed by nine Faculty Members in the Faculty of Health Sciences and Faculty of Education.

We request that Academic Council review the Interdisciplinary Centre for Preventative Nutrition & Technology (ICPNT) Centre proposal and find it appropriate to recommend to the Board of Governors for approval.

BACKGROUND/CONTEXT & RATIONALE:

We propose to establish the Interdisciplinary Centre for Preventative Nutrition & Technology (ICPNT) at Ontario Tech University. The ICPNT aims to be recognized globally as a leader in interdisciplinary applied nutrition research, driving innovative policy and practice solutions that address real-world nutrition problems in Canada and beyond. Its mission is to improve the health and well-being of populations and communities locally, nationally, and internationally through visionary interdisciplinary nutrition research. The ICPNT is committed to research focused on identifying nutrition-related concerns and on interventions and policies that improve health and well-being across the life course. By integrating technology and artificial intelligence (AI), and prioritizing equity, diversity, and inclusion, we will enable progressive, effective and sustainable

solutions for individuals, practitioners and policymakers. We are also dedicated to cultivating the next generation of outstanding researchers who will advance innovation in tackling global nutrition challenges.

The ICPNT'S interdisciplinary and technological expertise uniquely positions it to conduct cutting-edge nutrition research that captures the multifaceted nature of nutrition challenges and how they interact with personal and environmental factors. The ICPNT will distinguish itself from nutrition research centres in Canada and abroad, which tend to be focused on clinical sciences, basic sciences, food innovation, agriculture, or specific life stages or diseases. Through our review of similar nutrition research centres nationally and globally, the ICPNT stands out as the only known entity with a research mandate that meaningfully integrates technology with nutrition science. As nutrition increasingly intersects with technology and AI to innovate dietary assessments, education initiatives, lifestyle interventions, and data analyses, centres like the ICPNT, prioritizing cutting-edge technological innovations as part of its research, are uniquely positioned to become leaders in solving "wicked" nutrition problems using innovative tools.

Such collaboration is integral to innovation and will allow the ICPNT to become a leader in solving complex intersectoral problems that represent the most challenging issues our society faces today. Specifically, we envision a research program that will include three nutrition research domains: 1) chronic disease risk and management; 2) health and wellness across the lifespan; and 3) education, implementation and practice. Each domain incorporates a technology- and equity-focused lens and includes a research and dissemination plan to facilitate policy and practice change. The research will target several key areas for action, including perinatal families; parents and the school food environment; tackling disparities in knowledge, behaviour, and health/food literacy; food insecurity in youth, adults and older adults; the barriers practitioners face in translating nutrition recommendations into practice; and nutrition-related behaviours and inequities impacting chronic disease risk.

Currently, there are no research entities at Ontario Tech dedicated to tackling the varied and complex nutrition issues facing the world today. This formal interdisciplinary research centre will draw on expertise from the Faculty of Health Sciences, Faculty of Education, and Faculty of Business and Information Technology, existing research Centres and Institutes at Ontario Tech, and leverage relationships with external partners to propel innovation. The Centre will strengthen the impact of Ontario Tech's nutrition research while also advancing Ontario Tech's values and strategic research priorities: Healthy population, community well-being, and social justice; Tech with a conscience; Equity, diversity, and inclusion; Engaging communities where they live, work, and play; Partnership-building and collaboration; Training and capacity-building, Creating a sticky campus.

RESOURCES REQUIRED:

8.1. Physical Requirements

No new infrastructure needed. At start-up, the ICPNT members will use their existing research spaces (Box 2), which may require expansion in the future as the Centre grows. The new home to the Faculty of Health Sciences, Shawenjigewining Hall, will provide additional space for the ICPNT research activities, such as a meeting place for collaborations, and a safe space for students, faculty, partners, and staff. There are no new lab requirements for the ICPNT at the present time.

Box 2. Description of available infrastructure/research space

Dr. Arcand	Lab that includes 4 offices (2x desks each) for trainees in U5 building
Dr. Hughes	STEAM 3D Maker Lab (virtual tour - https://janettehughes.ca/lab/)
Dr. Sun	Geriatric Dementia Unit; Research Office (experiential student placement at Ontario Shores Centre for Mental Health Sciences)
Dr. Kapralos	1 lab (GAMER Lab) for trainees in SIRC building

8.1.2. The ICPNT and its members will require the use of basic office lab equipment (e.g., computers, phones, desks, monitors, copiers) and software for data collection (e.g., Qualtrics, REDCap), analysis (e.g., R Studio, SPSS, NVivo) and writing (e.g., Endnote). Many of these resources are available internally. Any resources requirements above and beyond what is internally available will be purchased with the ICPNT faculty member research funds (e.g., wearables or mobile devices for intervention delivery or data collection). As new research is planned, more specialized resources may be required and ICPNT faculty members will apply for funds to cover these resource costs. The ICPNT will utilize library resources to access journal articles, books, and periodicals; however, ICPNT faculty members have Research Librarians on their teams to assist with research projects that utilize scoping and systematic review methodologies.

8.2. Staffing Requirements and Governance Structure

Administrative support will be provided by a part-time Coordinator, hired as an employee of the ICPNT. They will be responsible for assisting the Director with administrative and organizational tasks. Compensation for the Coordinator will derive from ICPNT member grants. In Year 1, additional funds are requested as part of the Start-up funds (Section 8.3.2) to support the development of ICPNT processes and online presence.

Graduate students and postdoctoral fellows will be recruited each year as part of the ICPNT training activities. They participate in research and dissemination activities, seminar planning, and mentor undergraduate students. These students will be funded through Teaching Assistantships or partially funded Teaching Assistantships that are funded by Ontario Tech; and/or Graduate Research Assistantships that are funded by the ICPNT faculty members through their operating grants; and/or by external scholarships such as Ontario Graduate Scholarships, or those from CIHR, NSERC or SSHRC. The ICPNT will aim to have at least one postdoctoral fellow each year. The postdoctoral fellow will conduct advanced research under the supervision of the ICPNT faculty members, contributing to published work, grant applications, and student training. Postdoctoral fellows will be funded through the ICPNT faculty member's operating grants and/or competitive scholarship programs from agencies such as the Banting Postdoctoral Fellowship program, CIHR, SSHRC, NSERC, or the Heart & Stroke Foundation.

Future expansion the number of staff and trainees will be reevaluated as research projects are initiated and contingent upon securing funding to support this growth.

8.2.2 There are currently no ongoing agreements with personnel who are employees of external institutions or corporations. Such agreements will be prepared on an ongoing basis.

IMPLICATIONS:

Sustainability. In the past, ICPNT members have collectively secured more than $14 million in total research funding as principal applicants or investigators (PIs) from all sources. The ICPNT PIs currently have 2.7 million in funds secured for the next 5 years, with more funds expected as new grant applications are submitted. The ability of the members to jointly obtain funding, and contribute funds to future ICPNT operations, is evident from the numerous successful grant applications that they have worked on together in the past.

Securing external funding will ensure a steady flow of resources to support the ICPNT's research activities. Long term success and sustainability of funding is expected given past successes in securing funds from a variety of sources. Regarding longer-term funding for the ICPNT, the Faculty of Health Sciences and Dr. Arcand is working closely with Advancement to secure donations for a Research Chair funding and/or funding for the ICPNT. These efforts could provide opportunities for individuals or organizations to become named sponsors of the Centre, and the funds raised can be used to support the operations of the ICPNT or to establish a Research Chair position linked to the Centre. The ICPNT will also focus on pursuing a wide range of funding opportunities that can support ICPNT operations and research, including tri-agency councils and those that value an interdisciplinary approach (e.g., New Frontiers in Research Fund, Canadian Foundation for Innovation). Each ICPNT faculty member will act as the lead within their respective research areas while leveraging the collective expertise of all members to strengthen their proposals through internal peer review. The funds will be used to support research pursuits, graduate students, research assistants, postdoctoral fellows, and dissemination activities (e.g., conferences, journal publications, seminars). ICPNT members will apply for funding opportunities to support the management and infrastructure of the ICPNT as needs arise going forward (e.g., external research grants will have funds allocated to support the ICPNT operations). In addition, funding from the Canadian Foundation for Innovation (CFI) Infrastructure Operating Fund helps cover a portion of the operating and maintenance costs of CFI-funded research infrastructure. All students working with the ICPNT will additionally be encouraged to apply for scholarships with mentorship to develop their applications. The ICPNT members will also actively fundraise to support ICPNT work. Each year, the budgetary needs of the ICPNT will be re-evaluated to ensure the efficient use of resources.

ALIGNMENT WITH MISSION, VISION, VALUES & STRATEGIC PLAN:

ICPNT Vision

To be recognized globally as a leader in interdisciplinary applied nutrition research, driving innovative policy and practice solutions that address real-world nutrition problems in Canada and beyond.

ICPNT Mission Our mission is to improve the health and well-being of populations and communities locally, nationally, and internationally through visionary interdisciplinary nutrition research. We are committed to research focused on identifying nutrition-related concerns and on interventions and policies that improve health and well-being across the life course. By integrating technology and artificial intelligence (AI), and prioritizing equity, diversity, and inclusion (EDI), we will enable progressive, effective and sustainable solutions for individuals, practitioners and policymakers. We are also dedicated to cultivating the next generation of outstanding researchers who will advance innovation in tackling global nutrition challenges. *Global and national need for a Centre for Nutrition Innovation, Policy & Practice* Maintaining a healthy diet across the lifespan is essential. Poor nutrition can negatively impact physical and cognitive development in children and increase susceptibility to all forms of malnutrition (e.g., undernutrition, micronutrient deficiencies, obesity) and to noncommunicable diseases (NCDs) (e.g., diabetes, cardiovascular disease (CVD), stroke, cancer, dementia). These adverse outcomes lead to profound and lasting social, economic,

and health consequences for individuals, their families, communities, and countries. While dietary needs vary, individually, culturally, and globally, the core principles of a healthy diet are consistently recognized. For adults, a healthy diet includes fruits, vegetables, legumes, nuts, whole grains, and limited free sugars, saturated fats, trans fats, and sodium. The same tenets apply to children, in addition to encouraging exclusive breastfeeding until six months of age, with complementary foods then added, containing no added sugars and sodium.

ALTERNATIVES CONSIDERED:

The ICPNT will position Ontario Tech as a leader in nutrition-related knowledge, attitudes, and behaviours, nutrition security, health promotion and policy interventions with a focus on equity, AI, and technology (Section 4.1), raising the University's global presence in nutrition research. We envision the Centre's growing reputation will act as a beacon, attracting top students and trainees who seek to engage in impactful interdisciplinary nutrition research. The ICPNT's potential for success is bolstered by the extensive track records of the individual members (Section 7), with the expectation that accomplishments will be amplified with collective efforts unified by a common vision.

CONSULTATION:

- Consultation and feedback on the establishment of the Interdisciplinary Centre for Preventative Nutrition & Technology (ICPNT) were carried out at different levels among the Faculty starting from September 25, 2024. The proposal of the ICPNT was presented in the Faculty Council on October 2, 2024. Then, the proposal was discussed with the University Research Committee on November 19, 2024.

- These existing relationships speak to the capacity of our members to work cooperatively, and through the ICPNT, even members without prior relationships will have the opportunity to work together on new research projects (Section 4.1) and joint efforts to leverage past success in obtaining external funding (Section 4.3). Beyond the member relationships, the ICPNT will work closely with other Ontario Tech entities, including those our members are involved in. Dr. Hughes is the inaugural Director of the *Centre for Digital Innovations in Education* (CDIE), which focuses on community-driven educational innovation through the inclusion of internal and external community partners. The CDIE, led by the Faculty of Education, aligns naturally with the ICPNT, particularly for research focused on health and wellness across the lifespan, education, practice, and implementation, and the cross-cutting theme of practice and policy change (Section 4.1).

COMPLIANCE WITH POLICY/LEGISLATION:

The establishment of the ICPNT aligns with Ontario Tech University's Procedure for the Creation of Research Units, Centres, and Institutes.

NEXT STEPS:

Board of Governors for approval.

MOTION FOR CONSIDERATION:

That pursuant to the recommendation of the Research Committee, Academic Council hereby recommends the Establishment of Interdisciplinary Centre for Preventative Nutrition & Technology (ICPNT) for approval by the Board of Governors, as presented.

SUPPORTING REFERENCE MATERIALS:

- Proposal for the Establishment of the Interdisciplinary Centre for Preventative Nutrition & Technology (ICPNT) attached.
- Appendices B of the attached proposal has the projected budget information.

Proposal for the establishment of an Interdisciplinary Centre for Preventative Nutrition & Technology

ONTARIO TECH UNIVERSITY

1. Name of the Entity (Unit, Centre or Institute)

Interdisciplinary Centre for Preventative Nutrition & Technology (ICPNT)

2. Proposers – including name, title, and contact information

Dr. JoAnne Arcand, Associate Professor, Research Excellence Chair in Food, Nutrition & Health, Faculty of Health Sciences, Ontario Tech University. Tel: 905.721.8668 ext. 3796; joanne.arcand@ontariotechu.ca

Dr. Jennifer Abbass Dick, Associate Professor, Faculty of Health Sciences, Ontario Tech University. Tel: 905.721.8668 ext. 3735; jennifer.abbassdick@ontariotechu.ca

Dr. Caroline Barakat - Associate Professor, Faculty of Health Sciences, Ontario Tech University; Tel: 905.721.8668 ext. 2173; caroline.barakat@ontariotechu.ca

Dr. Janette Hughes, Professor and Canada Research Chair in Technology and Pedagogy, Faculty of Education Ontario Tech University; Director, Centre for Digital Innovations in Education (CDIE). Tel: 905.721.8668 ext. 2875; janette.hughes@ontariotechu.ca

Dr. Bill Kapralos, Associate Professor, Game Development and Interactive Media, Faculty of Business and Information Technology, Ontario Tech University. Tel: 905.721.8668 ext. 2882; bill.kapralos@ontariotechu.ca

Dr. Janet McCabe - Associate Professor, Faculty of Health Sciences, Ontario Tech University; Tel: 905.721.8668 ext. 6270; janet.mccabe@ontariotechu.ca

Dr. Winnie Sun, Associate Professor, Research Excellence Chair in Healthy Aging and Dementia Care, Faculty of Health Sciences, Ontario Tech University; Director and co-lead, Advancement for Dementia Care Centre (ADCC). Tel: 905.721.8668 ext. 5349; winnie.sun@ontariotechu.ca

Dr. Mavra Ahmed, Adjunct Professor, Faculty of Health Sciences, Ontario Tech University; Research Associate Department of Nutritional Sciences and Joannah and Brian Lawson Centre for Child Nutrition, University of Toronto. Tel: 416.978.7921; mavz.ahmed@utoronto.ca

Dr. Mary L'Abbé, Adjunct Professor, Faculty of Health Sciences, Ontario Tech University; Professor Emeritus, Department of Nutritional Sciences, University of Toronto; Director, WHO Collaborating Centre on Nutrition Policy for Chronic Disease Prevention. Tel: 416. 946.7545; mary.labbe@utoronto.ca

3. Background Description and Justification

3.1. Explain why the entity is needed at Ontario Tech University, and if possible, the larger community.

We propose to establish the Centre for Interdisciplinary Nutrition Research & Innovation (ICPNT) at Ontario Tech University to address a considerable and unmet need in nutrition research, as detailed below. Currently, there are no research entities at Ontario Tech dedicated to tackling the varied and complex nutrition issues facing the world today. This formal interdisciplinary research centre will draw on expertise from several faculties and leverage relationships with external partners to propel innovation, including a strong emphasis on technology. The Centre will bolster the impact of Ontario Tech's nutrition research while also advancing Ontario Tech's strategic research priorities.

ICPNT Vision

To be recognized globally as a leader in interdisciplinary applied nutrition research, driving innovative policy and practice solutions that address real-world nutrition problems in Canada and beyond.

ICPNT Mission

Our mission is to improve the health and well-being of populations and communities locally, nationally, and internationally through visionary interdisciplinary nutrition research. We are committed to research focused on identifying nutrition-related concerns and on interventions and policies that improve health and well-being across the life course. By integrating technology and artificial intelligence (AI), and prioritizing equity, diversity, and inclusion (EDI), we will enable progressive, effective and sustainable solutions for individuals, practitioners and policymakers. We are also dedicated to cultivating the next generation of outstanding researchers who will advance innovation in tackling global nutrition challenges.

Global and national need for a Interdisciplinary Centre for Preventative Nutrition & Technology

Maintaining a healthy diet across the lifespan is essential. Poor nutrition can negatively impact physical and cognitive development in children,[1] and increase susceptibility to all forms of malnutrition (e.g., undernutrition, micronutrient deficiencies, obesity) and to non-communicable diseases (NCDs) (e.g., diabetes, cardiovascular disease (CVD), stroke, cancer, dementia).[2-4] These adverse outcomes lead to profound and lasting social, economic, and health consequences for individuals, their families, communities, and countries.[2, 3] While dietary needs vary, individually, culturally, and globally, the core principles of a healthy diet are consistently recognized.[5] For adults, a healthy diet includes fruits, vegetables, legumes, nuts, whole grains, and limited free sugars, saturated fats, trans fats, and sodium.[5] The same tenets apply to children, in addition to encouraging exclusive breastfeeding until six months of age, with complementary foods then added, containing no added sugars and sodium.[5]

Despite having a robust understanding of what a healthy diet entails, there is a dire need for improved nutritional quality in Canada and globally, given current poor nutritional status, health outcomes, and nutritional inequities.[2, 6, 7] Progress toward the United Nations (UN) sustainable development goal (SDG) to "end hunger, achieve food security and improved nutrition and promote sustainable agriculture" by 2030 has primarily stagnated or regressed.[6] In 2023, 9.1% (713 million to 757 million people) of the world's population experienced hunger.[6] In 2022, 22.3% (148 million) of children under 5 years old were affected by stunting and 6.8% (45 million) experienced wasting – many living in Central and Southern Asia or sub-Saharan Africa.[6] Additionally, worldwide, 20% of youth, and 43% of adults were overweight, with 8% of youth and 890 million adults living with obesity.[6, 8] Globally, dietary risk factors contribute to an estimated 11 million deaths and 255 million disability-adjusted life years (DALYs) annually among adults 25 years and older.[7] The leading dietary risk factors contributing to deaths and DALYs were high intake of sodium, low intake of whole grains, and low intake of fruits.[7] In Canada, 27-39% of all-cause mortality in men and 9-23% of all-cause mortality in women is attributable to poor dietary patterns.[9] Unhealthy eating in Canada costs $13.8 billion annually[10] – an amount comparable to the economic costs of smoking and exceeding the costs associated with physical inactivity.

Dietary patterns are complex, evolve over time, and are shaped by a multitude of interrelated factors, each representing an opportunity to intervene.[11] Individual-level determinants include cognitions, skills and behaviours, lifestyles, and biological and demographic factors.[11] Environmental-level determinants span social (e.g., friends, family, peers, social norms, role modelling), physical (e.g., home, schools, work site, restaurants, supermarkets), and macro-level environments (e.g., cultural values and factors, economic systems, food industry, food distribution, marketing, media, food policies, health care systems, education system land use).[11] These socio-ecological factors relate closely to the concept of nutrition security by influencing equitable and sustained availability (e.g., quantity and quality of food), access (e.g., obtainability, alignment with an individual's cultural, social, or dietary preferences), affordability (e.g., financial resources, food cost) and utilization (e.g., factors impacting use and intake, like food knowledge and skills, food waste, mobility, social isolation) of foods that promote well-being and prevent and treat disease.[12] Consequently, the complexity of food systems and the factors influencing diets and nutrition security demand an equally intricate response, which includes the engagement of scholars and stakeholders from multiple disciplines and sectors.[13]

In addition, technology is transforming the field of nutrition in unprecedented ways. The last decade or so has seen the proliferation of digital technologies to address nutrition problems, taking the form of eHealth (e.g., health-related websites, wearables or software) and mHealth tools (mobile apps), that are being applied in clinical, community, and public health settings.[14-17] Technology and artificial intelligence (AI) can be used to assess diets, educate about nutrition, personalize nutrition interventions by analyzing individual data to provide tailored recommendations and predict health outcomes, enhance the analysis of

large datasets and uncover patterns and trends that inform public health strategies and clinical interventions. The future application of AI related to nutrition may be vital for preventing and managing chronic diseases. AI in nutrition research and practice is an emerging field with significant potential. A recent scoping review identified only 22 studies that applied AI to address nutrition challenges, with the most common application being for dietary assessment and dietary pattern identification.[18] This review suggests there is an extraordinary opportunity for leadership in integrating technology and AI into nutrition research and practice, which can be harnessed with the ICPNT at Ontario Tech.

The ICPNT's interdisciplinary and technological expertise uniquely positions it to conduct cutting-edge nutrition research that captures the multifaceted nature of nutrition challenges and how they interact with personal and environmental factors. Such collaboration is integral to innovation and will allow the ICPNT to become a leader in solving complex intersectoral "wicked" problems that represent the most challenging issues we face today. Specifically, we envision a research program that will include three nutrition research domains: 1) chronic disease risk and management; 2) health and wellness across the lifespan; and 3) education, implementation and practice. Each domain will execute a research and dissemination plan to facilitate policy and practice change while incorporating a technology- and equity-focused lens. The research will target several key areas for action, including perinatal families; parents and the school food environment; tackling disparities in knowledge, behaviour, and health/food literacy; food insecurity in youth, adults and older adults; the barriers practitioners face in translating nutrition recommendations into practice; and nutrition-related behaviours and inequities impacting chronic disease risk.

The recent commitments from the World Health Organization (WHO) and the UN to address nutrition issues further underscore the considerable nutrition problems facing the world and emphasize more than ever, the need for effective and equitable interventions, though these challenges resist simple solutions.[2, 6, 19, 20] The ICPNT will play a crucial role in supporting several national and international goals, including the:

- Canadian government's commitment to an overall healthier food environment, as emphasized in its Healthy Eating Strategy for Canada, which is poised to address key factors related to improving healthy eating information, improving the nutritional quality of foods, and protecting vulnerable populations.[21]
- UN SDGs of ending hunger, supporting health and well-being, and reducing inequalities (SDG 2, 3, 10) and fostering collaboration and partnerships with governments, non-governmental organizations (NGOs) and other stakeholders to strengthen efforts (SDG 17).[22]
- WHO's NCD Global Action Plan, which was developed with a vision for a world free of the avoidable burden of noncommunicable diseases, including the overarching principles of taking a life-course approach, empowerment of people and communities, use of evidence-based strategies, equity-based approaches, and multisectoral action.[23]

- Food and Agriculture Organization of the UN's mandate to end hunger and malnutrition across the globe and its strategic framework (2022-2031). This framework seeks to support the SDGs, including through better nutrition, better environment, better life, and better production while leaving no one behind. [24]
- WHO/Pan-American Health Organization (PAHO) Sustainable Health Agenda (2018-30) which calls for strong measures to address inequity through food quality, access, and availability as a means to improve risk factors and outcomes related to NCDs and mental health.[25]
- WHO/PAHO Strategy and Plan of Action on Health Promotion (2019-30), which prioritizes integrating the social determinants of health into health promotion efforts as a strategy to address health equity, enabling community participation and empowerment, and strengthening key healthy settings (e.g., schools, houses, workplaces).[26]

The need for nutrition research that strongly aligns with the ICPNT mission has also been emphasized by the Canadian non-profit sector. For instance, the Heart & Stroke Foundation published a call to action for increasing food and nutrition research, monitoring, and evaluation, with the aim of creating a better understanding of the impact of diet on health and disease and to inform the development and evaluation of nutrition interventions.[27]

The need for a an Interdisciplinary Centre for Preventative Nutrition & Technology at Ontario Tech

The ICPNT will distinguish itself from nutrition-focused research centres in Canada and abroad, which tend to be focused on clinical sciences, basic sciences, food innovation, agriculture, or specific life stages or diseases. Through our review of similar nutrition research centres nationally and globally, the ICPNT stands out as the only known entity with a research mandate that meaningfully integrates technology and AI with nutrition science. As nutrition increasingly intersects with technology and AI to innovate dietary assessments, education initiatives, lifestyle interventions, and data analyses, centres like the ICPNT, prioritizing cutting-edge technological innovations as part of its research, are uniquely positioned to become leaders in solving "wicked" nutrition problems using innovative tools.

There is also currently no research entity at Ontario Tech aiming to deliver the comprehensive applied nutrition research proposed by the ICPNT. By establishing a ICPNT, Ontario Tech will address this gap and provide the infrastructure needed for this interdisciplinary, collaborative, and innovative work. The ICPNT aligns well with and will contribute to advancing Ontario Tech's research mission and strategy (Section 4.2). Briefly, Ontario Tech is uniquely positioned to establish a research centre dedicated to advancing innovative nutrition research with its commitment to addressing societal challenges through innovation and research excellence. The ICPNT will address a critical global need that is aimed at achieving Ontario Tech's strategic research priority of "*healthy population, community well-being, and social justice*," while thoroughly considering "*tech with a*

conscience" and "*equity, diversity, and inclusion"* in its planning. The ICPNT will benefit from being situated at Ontario Tech, which has technology at the heart of its values. With faculty experts to collaborate with – leading to cutting-edge research and innovations – the ICPNT will become a leader in digital nutrition and the only known nutrition-focused research centre or institute with technology as a core theme in Canada. The ICPNT will benefit the University and the local community by providing access to exemplary nutrition research; enhancing educational opportunities and serving as an education hub; attracting high-quality training and research collaborations; promoting diversity; creating jobs; increasing awareness of nutrition and health for optimal growth and development and chronic disease prevention; and reducing health disparities in the community over the long term.

Nutrition is already an area of research excellence at Ontario Tech and can be strengthened by the multidisciplinary nature of the Faculty of Health Sciences and its programs (Nursing, Health Sciences/Public Health, Kinesiology, Medical Laboratory Sciences), as well as with collaborations across the university and broader academic and stakeholder communities in Canada and elsewhere. Current nutrition research at Ontario Tech explores:

- Nutrition risks and interventions to support well-being (e.g., sleep, mental health, infant, child health and development);
- NCD prevention/ management (e.g., CVD, hypertension, diabetes, dementia);
- Evaluation of health promotion (e.g., breastfeeding support, healthy eating education, social marketing), policy (e.g., dietary sodium reduction), and practice (e.g., diverse health care providers including family doctors and dietitians, hospital administration) interventions for youth, for persons with disabilities, older adults, and the general population at large, regionally, across Canada, and globally; and
- Nutrition research questions using varied methodologies (e.g., RCTs, systematic reviews, community-based interventions, qualitative inquiry, implementation science, co-participatory action research).

The ICPNT will build on this foundation by formalizing an interdisciplinary collaboration of experts from various fields, breaking down research silos, and leveraging shared relationships with external partners to drive innovation and strengthen the impact of Ontario Tech's nutrition research (Section 6). The Centre will integrate expertise from across Ontario Tech, including the Faculty of Health Sciences, Faculty of Education, and Faculty of Business and Information Technology (Section 3.2). The ICPNT will position Ontario Tech as a leader in nutrition-related knowledge, attitudes, and behaviours, nutrition security, health promotion and policy interventions with a focus on equity, AI, and technology (Section 4.1), raising the University's global presence in nutrition research. We envision the Centre's growing reputation will act as a beacon, attracting top students and trainees who seek to engage in impactful interdisciplinary nutrition research. The ICPNT's potential for success is bolstered by the extensive track records of the individual members

(Section 7), with the expectation that accomplishments will be amplified with collective efforts unified by a common vision.

3.2. Describe how the entity will foster synergistic collaboration that would not otherwise be possible, and how the entity would facilitate research among scholars within the university and in the wider community.

In Canada, nutrition science programs, centres and institutes have traditionally been housed within faculties of agriculture or medicine with the foundation of nutrition rooted in agricultural, clinical, and basic science research. However, an interdisciplinary approach is vital to effectively tackle the complex nutrition issues, often termed "wicked" challenges, facing society today.[28] At Ontario Tech, the interdisciplinary nature of the Faculty of Health Sciences and the broader university fosters rich opportunities for cross-disciplinary collaboration, bringing together researchers who contribute diverse perspectives and methodological expertise (Section 7). The ICPNT will foster synergy by uniting members from the Faculty of Health Sciences, Faculty of Education, and Faculty of Business and Information Technology to engage in integrative research collaborations, communicate with knowledge users, and develop relationships with stakeholders. These relationships will capitalize on the complementary skills and knowledge of each member, collectively working towards a shared mission. As a small university, Ontario Tech offers an opportunity for accessible and organic collaborations across and within faculties that may be more challenging to accomplish at larger academic institutions. The ease of collaborating at Ontario Tech is evident from the past work of the ICPNT members.

The Centre will offer a way to formalize and expand upon the existing relationships that have developed among several members over the years. For example, Dr. Arcand, Dr. Hughes and Dr. Kapralos have been collaborating since 2016. Lately, they received a Canadian Institutes for Health Research (CIHR) project grant examining the efficacy of a digital school-based nutrition education intervention to improve healthy eating knowledge, attitudes, and behaviours ($481,950). This tri-agency funding builds upon their past funded collaboration ($1.175 million Ontario Research Fund – Research Excellence grant) that focused on designing, developing, and researching, educational apps. Additionally, Dr. Arcand, Dr. L'Abbé, and Dr. Ahmed have also partnered on several grants together, including a four-year CIHR project grant investigating the contextual and behavioural factors related to sodium intake among Canadian adults ($623,476). Dr. Sun and Dr. Abbass Dick have most recently joined forces to look at the effectiveness of eHealth breastfeeding co-parenting educational resources on overcoming early breastfeeding challenges and increasing exclusivity rates in the first four weeks postpartum. Dr. Barakat, Dr. Abbass Dick, and Dr. Sun received a grant in 2017 for a scaling-up approach to educating home care nurses about de-prescribing to promote safety in medication management among frail older adults ($14,939). These existing relationships speak to the capacity of our members to work cooperatively, and through the ICPNT, even members without prior relationships will have the opportunity to work together on new research

projects (Section 4.1) and joint efforts to leverage past success in obtaining external funding (Section 4.3).

Beyond the member relationships, the ICPNT will work closely with other Ontario Tech entities, including those our members are involved in. Dr. Hughes is the inaugural Director of the *Centre for Digital Innovations in Education* (CDIE), which focuses on community-driven educational innovation through the inclusion of internal and external community partners. The CDIE, led by the Faculty of Education, aligns naturally with the ICPNT, particularly for research focused on health and wellness across the lifespan, education, practice, and implementation, and the cross-cutting theme of practice and policy change (Section 4.1). Similarly, Dr. Sun is the Director and co-lead for the *Advancement for Dementia Care Centre* (ADCC) (https://dementiaresearch.ca/), which is dedicated to unearthing solutions that enhance the quality of life and support for those affected by dementia through innovation in research and deployment of new technologies. The ADCC is a combined effort between Ontario Tech and Ontario Shores Centre for Mental Health Sciences. Dietary health is not only an important factor relating to the onset and progression of dementia,[4] but dementia can also negatively affect a person's nutritional status.[29] The scope of the ADCC aligns well with the ICPNT's research Domain 1, which focuses on chronic disease risk and management (Section 4.1). There will also be opportunities for collaboration with Ontario Tech's *Institute for Disability and Rehabilitation Research* (IDRR). The IDRR is dedicated to the study of disability and rehabilitation related to musculoskeletal pain and mental health conditions. Nutrition and food insecurity in this population is an area of focus for the IDRR, and a reciprocal relationship between the research entities could be highly beneficial. For instance, the "Canadian Nutrition and Health Survey" led by Dr. Arcand will enable novel explorations of the intersection between nutrition and disability. In past years, the IDRR documented food insecurity and its association with mental health among Ontario Tech students, further demonstrating a connection between fields and the potential to benefit Ontario Tech with such relationships. Dr. Kapralos is one of the co-directors of the maxSIMhealth Lab (https://www.maxsimhealth.com/) which is a multidisciplinary collaborative focused on transforming healthcare through innovative simulation experiences and hands-on learning. maxSIMhealth leverages state-of-the-art manufacturing, design, and simulation labs, bringing together expertise from diverse faculties, including Health Sciences, Business and Information Technology, Engineering and Applied Sciences, Education, and Social Sciences, as well as partnering with several community organizations. The ICPNT can work with the maxSIMhealth team to identify innovative and technology-driven solutions to nutrition problems.

The ICPNT will actively bridge the gap between the university and the wider community by maintaining and cultivating relationships with key stakeholders and knowledge users from across organizational and geographic boundaries. Examples of partnerships for the ICPNT draw from the longstanding collaborative relationships our members already have with local, provincial, national, and international organizations. Dr. L'Abbé is the director of the WHO Collaborating Centre for Nutrition Policy for Chronic Disease Prevention, and Dr.

Arcand is a Scientist affiliated with that Centre, contributing substantially to its research mandate during the last renewal. The WHO Centre, which is one of only two WHO nutrition centres in Canada, provides technical advice, training and education, and conducts research to build up the evidence base to inform work on food and nutrition policies and support capacity-building efforts for NCD prevention. The scope of this WHO Centre clearly aligns with research Domain 1, consisting of research on chronic disease risk and management (Section 4.1). Working together will provide the ICPNT with opportunities to meet the requests of the WHO and the PAHO and ensure the research outputs are user-guided and actionable (e.g., revision to the WHO/PAHO sodium reduction targets). The ICPNT members also have partnerships with many organizations, including, but not limited to, Durham Region Health Department, Lakeridge Health, Toronto Public Health, Simcoe Muskoka District Health, 49 school boards across all regions of Ontario, Ontario Physical and Health Education Association, Ontario Dietitians in Public Health, Health Canada, Canadian Nutrition Society, Dietitians of Canada, International Development Research Centre, Heart & Stroke, International Network for Food and Obesity / Non-communicable Diseases Research, Monitoring and Action Support (INFORMAS), Food and Agricultural Organization of the UN, and others (see Section 7 for a full list of partnerships).

Synergy within the Centre will be further enhanced through structured networking and communication opportunities, including regularly scheduled meetings for all members with roundtable updates, quarterly meetings with the Scientific Executive Committee (Section 8.2), quarterly student seminars/workshops (Section 5.2), and social events. Collaboration within the Centre will also be increased through the co-supervision of graduate students, postdoctoral fellows, and undergraduate students completing research practicums and capstone projects (Section 5.1). This will enable engagement within and between disciplines and faculties.

4. Research Mandate

4.1. Outline the type of research to be performed and identify the scope of activities envisaged.

The ICPNT will conduct research across three domains: 1) Chronic Disease Risk & Management; 2) Health and Wellness Across the Lifespan, and; 3) Education, Implementation & Practice, all of which will include a research and dissemination plan to facilitate policy and practice change, ultimately leading to improved nutrition and health outcomes for people in Canada and worldwide (Figure 1). Each domain will include a strong emphasis on technology and equity-focused research (also detailed in Section 4.2).

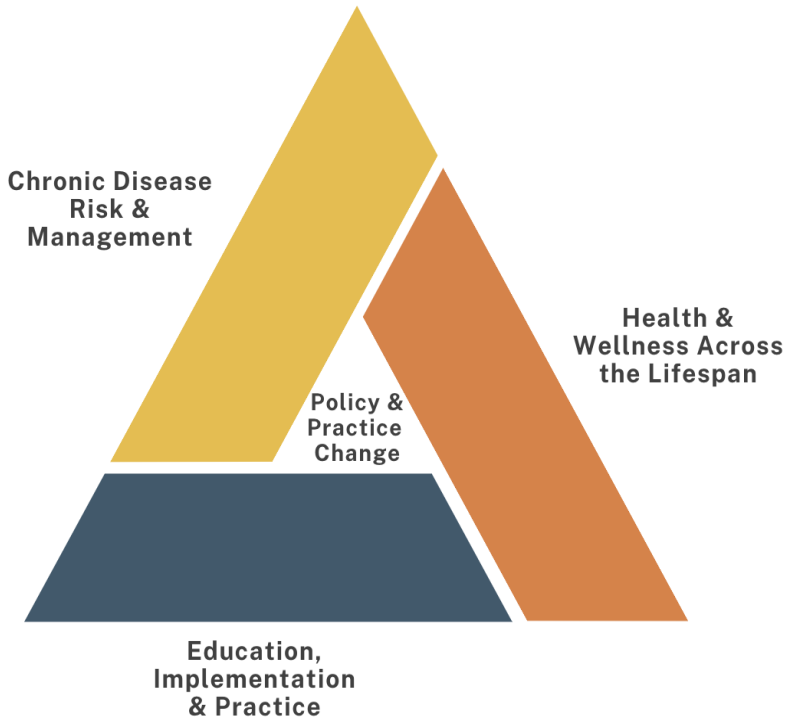


Figure 1. The ICPNT research domains

Domain 1: Chronic Disease Risk and Management

Overview and Impact: This research will inform dietary guidelines and effective interventions that improve chronic disease-related health outcomes and quality of life for individuals in the general population and with chronic diseases. This will be achieved by identifying and addressing nutritional risk factors related to chronic diseases and by investigating the underlying cognitive, social, environmental, and behavioural factors influencing dietary intake and chronic disease risk, integrating concepts like food and health literacy. It will explore the reciprocal interactions between individuals and various interconnected systems and settings, such as the food environment (e.g., food quality, food safety, food advertising), the physical environment, the digital information environment, the healthcare environment, and the policy environment. Emphasizing EDI and participatory action research methods, the research will incorporate diverse perspectives to inform its strategies. Using technology (including AI) to address nutrition challenges can lead to improved data collection and personalized dietary recommendations, enhancing individuals' ability to make informed choices. It also fosters greater access to nutrition information and expert advice, particularly in underserved areas, empowering communities to improve their health.

Domain 1, Focus 1. To conduct public health and clinical studies on nutritional risk factors related to the onset and management of chronic diseases, such as CVD, cancer, dementia, and chronic kidney disease.

Approaches. This research will use both public health and clinical research approaches to investigate and address nutritional risk factors for chronic diseases, which includes evaluating the impact of these nutritional risk factors on health outcomes using surveillance, observational studies, and intervention trials. Public health research may include monitoring and assessing the nutritional quality of the food supply, overall dietary intake and/or community-based interventions. Observational studies may examine the impact of nutritional risk factors on dietary and health outcomes, including cost-benefit analyses. Clinical research will focus on intervention studies, such as trials and pilot or feasibility studies, to assess the effectiveness and acceptability of dietary interventions and their impact on clinical outcomes and quality of life. When relevant, systematic reviews will be conducted to inform this research.

Example of Domain 1, Focus 1

A multi-country study on the availability of sodium-reduced foods and progress in reducing sodium in low- and middle-income countries in Latin America.
Low- and middle-income countries are disproportionately impacted by CVD, hypertension, and excess dietary sodium; making reductions in the sodium content of foods a critical public health strategy. As part of her leadership role in a large research consortium funded by the International Development Research Centre, Dr. Arcand evaluated the sodium content of packaged foods in four Latin American countries, and examined the extent to which food manufacturers had reduced sodium levels over four years, including the proportion of foods that met the WHO/Pan-American Health Organization (PAHO) sodium reduction targets. This research took place in Argentina, Costa Rica, Paraguay, and Peru. Dr. Arcand and her team found that some food categories had significantly reduced sodium levels, but many did not. This data also highlighted that the sodium targets set by the WHO/PAHO were not stringent enough to make meaningful population-level changes in sodium intake, necessitating revised sodium reduction targets. Following the publication of this data, Dr. Arcand co-chaired a WHO/PAHO committee to revise the WHO/PAHO sodium reduction targets, which were published in 2022.

Blanco-Metzler A., et al. 2021. Changes in the sodium content of foods sold in four Latin American countries: 2015 to 2018. Nutrients, 13(11), p.4108.

Domain 1, Focus 2. To examine and intervene on nutrition-related cognitive, social, and behavioural risk factors that promote the onset of chronic diseases or are implicated in their management.

Approaches. This research will integrate theoretically-derived factors influencing nutrition and health, including food and health literacy. Study designs will be applied to reflect the nature of the research question, such as qualitative and mixed methods studies, cross-sectional surveys, clinical and community-based interventions, and systematic/scoping reviews. This research will emphasize the principles of EDI which ensures end-users (including those from under-represented groups) are at the centre of the research - enabling action through a research cycle that is reflective, iterative, and draws on their different perspectives.

Example of Domain 1, Focus 2

Canadian Nutrition and Health Survey (CNHS)
Dr. Arcand has led the development, validation, and administration of a CIHR-funded national cross-sectional survey among Canadian adults - the CNHS - focused on food, nutrition, and health. This cross-sectional survey will 1) elucidate the cognitive, behavioural and environmental drivers of dietary sodium intakes in Canada, including analyses of how key indices of sodium knowledge, attitudes, and, behaviours have changed over the past 13 years in Canada, 2) evaluate food literacy, including its determinants and correlates with healthy eating behaviours, 3) explore where Canadians obtain their nutrition information, their trust in those sources, and their confidence in navigating the nutrition 'infodemic', the latter being WHO public health priority, and 4) evaluate how Canadians identify, perceive and respond to (e.g., trust, purchase intentions) conflicts of interest and paid product endorsements among Registered Dietitians on social media; data that can drive professional regulatory policies in Canada and abroad. This forthcoming data will provide crucial insights to advance Canadian public health nutrition policies and programs.

Domain 1, Focus 3. To address nutrition-related chronic disease risk and management through technology and AI.

Approaches. The research in Domain 1 will include the meaningful integration of technology when examining or addressing nutrition in relation to chronic disease risk and its management. Here, technology will be strategically developed (using rigorous evidence-based approaches), tailored and applied to meet the needs of specific populations, nutritional challenges, and settings. In creating new technologies, end users will be actively involved in every phase of the design, development, and implementation processes to ensure the tools are relevant and impactful. These actions will be crucial for enhancing accessibility, personalization, and the effectiveness of interventions; ultimately empowering individuals and communities to make informed choices that promote better health outcomes. Using AI to personalize user experiences to align with individual sociodemographic factors, preferences, and health conditions, our interventions will enable more targeted interventions. This results in real-time, adaptive feedback tailored to meet users' unique nutritional needs and health objectives, thus leading to improved nutrition and health outcomes.

Study designs will vary based on the stage of development and evaluation, ranging from exploratory qualitative and mixed-method approaches to more conclusive randomized controlled trials. This approach will ensure the technology is user-centred and thoroughly tested across different phases. Important outcomes such as feasibility, acceptability, and changes in nutrition knowledge, attitudes and behaviours will be evaluated, as well as nutrition and health outcomes (e.g., changes in dietary intake, changes in blood pressure) and health care integration metrics. In addition to using technology as a clinical and public health intervention to improve health outcomes (e.g., Sodium Calculator, "Our Voice" app), technology will also be used in data analysis (e.g., natural language processing for qualitative studies, machine learning for quantitative databases). For instance, AI will be leveraged to analyze datasets and identify behavioural trends over time, particularly patterns in food choices influenced by environmental and social factors, including food marketing and social media.

Example of Domain 1, Focus 3

Natural language processing and machine learning approaches for food categorization and nutrition quality prediction compared with traditional methods

Large food databases are required for food supply research in public health; however food categorization and nutrient profiling are labor intensive, time consuming, and costly tasks, given the number of products and labels in large food composition databases and the dynamic food supply. In a recently published study, Dr. Ahmed and L'Abbe used a pretrained language model and supervised machine learning to automate food category classification and nutrition quality score prediction based on manually coded and validated data, and compared prediction results with models using bag-of-words and structured nutrition facts as inputs for predictions. Food product information from University of Toronto Food Label Information and Price Database 2017 (n = 17,448) and University of Toronto Food Label Information and Price Database 2020 (n = 74,445) databases were used. Health Canada's Table of Reference Amounts (TRA) (24 categories and 172 subcategories) was used for food categorization and the Food Standards of Australia and New Zealand (FSANZ) nutrient profiling system was used for nutrition quality score evaluation. TRA categories and FSANZ scores were manually coded and validated by trained nutrition researchers. A modified pretrained sentence-Bidirectional Encoder Representations from Transformers model was used to encode unstructured text from food labels into lower-dimensional vector representations, followed by supervised machine learning algorithms (i.e., elastic net, k-Nearest Neighbors, and XGBoost) for multiclass classification and regression tasks. Pretrained language model representations utilized by the XGBoost multiclass classification algorithm reached overall accuracy scores of 0.98 and 0.96 in predicting food TRA major and subcategories, outperforming bag-of-words methods. For FSANZ score prediction, our proposed method reached a similar prediction accuracy (R^2: 0.87 and MSE: 14.4) compared with bag-of-words methods (R^2: 0.72-0.84; MSE: 30.3-17.6), whereas structured nutrition facts machine learning model performed the best (R^2: 0.98; MSE: 2.5). The pretrained language model had a higher generalizable ability on the external test datasets than bag-of-words methods. The automation used in this study achieved high accuracy in classifying food categories and predicting nutrition quality scores using text information found on food labels. This approach is effective and generalizable in a dynamic food environment, where large amounts of food label data can be obtained from websites.

Hu G, Ahmed M, L'Abbe M. 2023. Natural language processing and machine learning approaches for food categorization and nutrition quality prediction compared with traditional methods. Am J Clin Nutr. 117(3):553-563

Domain 1 Research: Examples of Research Looking forward

- Examine the relationship between the food literacy status of Canadians and its relationship to chronic disease risk including overall diet quality and nutrients of concern (sugar, sodium and saturated fat), with detailed analyses by under-represented groups using AI algorithms to identify patterns and disparities in food literacy and diet quality.
- Use AI to predict cognitive, behavioural and environmental risk factors associated with excess dietary sodium intake, and to identify target populations and personalized behavioural messaging for dietary sodium reduction campaigns.
- Develop, test, and evaluate a social marketing strategy for sodium reduction based on findings from the *Canadian Nutrition and Health Survey* and qualitative research.

- Adapt and validate the *Canadian Nutrition and Health Survey* dietary sodium module to Latin American countries to address WHO recommendation of longitudinal surveillance of sodium knowledge, attitudes, and behaviours in populations.
- Evaluate changes in knowledge, attitudes, and behaviours that occur after using a dietary sodium eHealth education intervention (Sodium 101) among persons with dementia and their caregivers.
- Examine toxins that affect health and chronic disease risk through food ingestion—such as acrylamides, heavy metals (Hg, Cd), polycyclic aromatic hydrocarbons (PAHs), and others. Leverage AI-based predictive models to identify correlations with food consumption patterns.
- Use citizen science research approaches to assess the barriers and drivers Canadians experience in their everyday life related to awareness, engagement, empowerment, and agency in dietary sodium reduction (including how these differ by socio-cultural subgroup) using a novel technology - "Our Voice" app (Stanford University), using AI-driven language processing identify trends in consumer experiences and behaviours.
- Assess the nutritional quality, marketing, and affordability of ethnic foods using the Food Label Information and Price database and examine the barriers and facilitators to healthy eating across ethnic groups, includes those at highest risk for metabolic and cardiovascular disease (e.g., people of South Asian decent).
- Scale-up FoodFlip© app by incorporating novel interpretative nutrition rating systems that align with dietary recommendations for chronic diseases, such as diabetes and/or hypertension, to help people with chronic diseases make healthier food choices.

Domain 2: Health and wellness across the lifespan

Overview and Impact: The research will identify novel solutions to enhance nutritional health, performance, and well-being and intervene to support the nutritional needs of diverse populations, particularly high-risk and under-represented groups, using nutrition policies, programs and community-based interventions. It will investigate factors affecting food availability, access, affordability, and utilization, and will focus on health equity for marginalized populations. Emphasizing technology-based tools and interventions will enable individuals to make informed decisions at every stage of life. By thoughtfully developing and applying technology, the ICPNT research will provide innovative resources for optimal infant and toddler feeding, foster food literacy skills in youth, and offer personalized nutrition solutions for adults. These advancements will improve nutrition, support better health outcomes, and enhance quality of life as dietary needs change over time.

Domain 2, Focus 1. To identify a range of factors, from the perinatal period to elderhood, that impact the (in)equitable availability, access, affordability, and utilization (including knowledge, attitudes, and behaviours) of foods that promote growth, nutritional health, and performance; and that prevent disease and disability.

Approaches. This research will examine nutritional needs and challenges to optimize nutritional health and diet quality during each stage of the life cycle (perinatal period to elderhood), including conditions and scenarios where nutritional needs may be altered (e.g., high-performance athletes; pregnancy, menopause) or where individuals may be at elevated nutritional risk (e.g., food insecure households, people with disabilities, hospitalized patients or community-dwelling elders). This research will strongly emphasize considerations related to health equity for traditionally disadvantaged and/or under-represented populations in the research design. These studies will apply a variety of methodologies such as qualitative research designs, cross-sectional observational studies, mixed methods studies, dietary surveillance studies, and intervention studies.

Example of Domain 2, Focus 1

Understanding the Nutritional Health of Special Olympics Athletes
People with intellectual disabilities are at higher risk of nutritional inadequacy and for developing obesity and chronic diseases. Dr. Janet McCabe recently supervised an undergraduate research practicum student to determine which aspects of nutritional adequacy are being examined in the context of adults with intellectual disabilities. They conducted a secondary data analysis of the Health Promotion Dataset maintained by Special Olympics International. The cohort analyzed included the Special Olympics athletes who participated in the 2020 Winter Games. The analysis showed a relationship between nutritional inadequacy and high classifications of body mass index (BMI) and blood pressure. A large proportion of athletes were overweight (29.4%) or obese (39%), and many were classified as having Stage 1 hypertension (35.4%). Athletes reported low intakes of fruits and vegetables, and high amounts of unhealthy snack foods. All these trends were consistent amongst both male and female athletes. This study reflects the importance of planning, promoting, and implementing more accessible health promotion activities for individuals with intellectual disabilities. These improvements will support adults with intellectual disabilities and their caregivers in developing the skills to improve their dietary intake, which has potential to impact their nutritional adequacy, quality of life, and risk of chronic conditions. Dr. McCabe has subsequent studies on nutrition planned for this population.

Ciardullo, P. and McCabe, J., 2021. Investigating the Nutritional Health of Special Olympics Athletes: A 2020 Overview. Cureus Journal of Medical Science.

Domain 2, Focus 2. To evaluate nutrition policies and community-based interventions to promote nutritional health.

Approaches. This research will examine the effectiveness and implementation of a range of healthy eating policies and interventions targeting factors that impact the availability, access, affordability, and utilization of foods that promote health and prevent disease, such as the food supply, food labelling and marketing, the digital food environment, and population-level behavioural interventions, among others. This research will include an examination of the effectiveness of policies and interventions designed to support healthy eating in defined communities such as those based on cultural or geographic identities (e.g., dietary interventions for the South Asian community, food access in rural/remote communities) and in various settings where people work, live, and play (e.g., school food programs, food procurement standards in daycares, and breastfeeding policies in health care organizations). Several research methodologies will be applied, including

participatory action research, qualitative and mixed methods research, observational studies (cross-sectional, dietary surveillance studies), systematic reviews, and intervention designs (trials, pilot, and feasibility studies).

Example of Domain 2, Focus 2

Assessing the impact of school food programs on students' dietary intakes, nutrition knowledge, attitude and behaviours, mental health, and academic achievements

The school food environment represents an effective setting for interventions to influence children's food choices at a time when foundational dietary and other health habits are developed. Throughout their learning years, nutrition affects children's health, well-being, and academic performance, and schools offer an important setting to promote health behaviors that can last a lifetime. The implementation of school food programs can enable healthy school food environments to offer various forms of support for children (e.g., nutritional, behavioural, social, familial). Upstream approaches should therefore explore school food programs for their potential role as viable public health interventions and levers for food environment transformation. As a co-chair of the INFORMAS food provision module, Dr. Mavra Ahmed investigated the school food environments across Canada. Among a sample of 111 elementary and secondary schools, the majority reported having their own written school food policy, of which 82% regularly offered at least one sugary beverage, while only 14% provided exclusively healthier options, such as water and unsweetened beverages. Overall, 55% of schools regularly sold both fruits and vegetables. Schools with a self-developed food policy were more likely to offer fruits and vegetables regularly (66%) compared to those without a policy (43%). Building on this research, Dr. Ahmed is currently conducting more detailed analyses of the impact of school food programs, in partnership with the Toronto District School Board. Specifically, she is assessing the impact of various school food program modalities (e.g., procurement standards, food quality, health promotion) on students' academic achievement, health and emotional well-being, dietary intake, and food and nutrition knowledge, attitudes and behaviours. Through this impactful research, Dr. Ahmed and her team are providing policymakers and school boards with crucial data to inform school food programs and how they impact children's growth and well-being.

Vaillancourt C, Ahmed M, et al. 2024. Food environment research in Canada: A rapid review of methodologies and measures deployed between 2010 and 2021. Int J Behav Nutr Phys Act, 2024. 21: 18.

Ziraldo, E., Ahmed, M., et al. 2024. Nutrient intakes of Canadian children and adolescents at school by meal and location of food preparation. Applied Physiology, Nutrition and Metabolism, Accepted.

Ahmed M, et al. 2024. Impact of the COVID-19 pandemic on the delivery, adaptability and resiliency of school food programs across Canada. Frontiers in Nutrition. 3:11:1296620

Domain 2, Focus 3. To improve nutritional health and well-being across the lifespan through technology and AI.

Approaches. The research in Domain 2 will include technology in several ways to promote nutritional health and well-being. The approaches used will be similar to those summarized in Domain 1, Focus 3. Here, the application of technology for supporting nutritional health across the lifecycle will include developing tailored eHealth interventions that address specific dietary needs of diverse populations. By leveraging technology, AI, immersive realities, wearables and health behaviour change theory, our tools will deliver

targeted and tested intervention strategies, providing personalized recommendations for healthy eating and engaging learning experiences for all ages to effectively influence nutrition knowledge, attitudes, and behaviours. It is felt this is an area where ICPNT can demonstrate leadership in AI. In Domain 2, Focus 1, AI and/or statistical algorithms will be used to analyze datasets to identify trends and outcomes, facilitating predictive analytics to measure impact and guide policy adjustments, as well as for supporting personalized nutrition and behavioural approaches. Further, AI can enable the analysis of large datasets to identify patterns in food access and nutrition, assess trends nutrition misinformation discourse on social media, examine factors that increase malnutrition risk, or provide personalized and equitable dietary recommendations and real-time feedback. For Domain 2, Focus 2, AI-driven chatbots could offer real-time dietary advice or guidance on food choices, while virtual reality simulations could immerse users in scenarios that promote healthy eating habits. Further, the nutrition serious games we develop, such as Foodbot Factory, can also incorporate AI-based virtual assistants/tutors, or use AI to personalize/adapt the game environment to make learning experiences more engaging. In all technologies used in our research, a user-centered design approach will ensure that tools remain relevant, with ongoing evaluation to assess their impact on dietary habits and overall health outcomes.

Example of Domain 2, Focus 3

A validation study of the AI-based RxFood mobile application

Image-based mobile applications that use artificial intelligence (AI) to measure foods and nutrients in the diet are increasingly available dietary assessment tools. These tools easily support individualized dietary assessment, using AI to provide personalized feedback and guidance to support healthy eating. Additionally, collecting high quality dietary intake data in research and clinical practice with traditional dietary assessment tools (e.g., food records) can be burdensome, time and resource intensive, and require users to have numeracy and literacy skills. The Canadian-based RxFood app uses photos, text, speech, and AI to capture and analyze dietary intake. However, the extent to which the RxFood app accurately assesses nutrient intakes is unknown – data that is critical to support its broader implementation. With funding from the Ontario Centres for Innovation, Dr. Arcand's team is partnering with RxFood Inc. to determine the degree to which RxFood accurately estimates intakes of energy, macronutrients and nutrients of public health concern, compared to a weighted food record (WFR, gold standard). Additionally, the research tests the hypothesis that the RxFood app has higher usability compared to a WFR among healthy adults. Healthy adults (≥18 years, mobile device users) will concurrently capture their dietary intake using RxFood and WFR over 3 consecutive days. This data will support the use of a highly novel AI tool in advancing delivery of healthy eating guidance and dietary assessment.

Domain 2 Research: Examples of Research Looking Forward

- Examine the prevalence of household food insecurity in persons with different types of disabilities by applying geospatial analysis with AI tools to map food insecurity.
- Explore the range of factors that influence food intake in athletes with intellectual disabilities, guided by the domains of food security (availability, affordability, access and utilization of foods that promote health and prevent disease).
- Conduct a cross-sectional analysis of the association between diet quality and the presence of different types of disability.

- Assess food availability and food quality for adults with intellectual and developmental disabilities, with the use of AI tools to analyze photos of food items or meals using image recognition to assess food quality and portion sizes, in supportive living arrangements.
- Examine Canadians' use of tech (e.g., internet, social media) to obtain nutrition information, and how the public identifies and responds to nutrition information and mis/dis-information found online, including social media; responding to the WHO infodemic priorities.
- Explore students' perspectives on barriers and facilitators to implementing school food programs using AI to cluster qualitative data and identify emergent patterns.
- Develop and test training, health and safety, and nutrition standards for school food programs: nutrient profiling, dietary index, and menu quality.
- Use grounded theory approach to explain the underlying factors influencing the nutrition habits and preferences of school-aged children.
- Conduct a needs assessment among youth to understand the influence of digital media (e.g., social media, digital marketing) on health and food literacy. Through social media analytics, AI tools can analyze social media content to understand trends in digital marketing and its impact on youth food choices and health literacy.

Domain 3: Education, Implementation, and Practice Research

Overview and Impact: This research is rooted in the principles of implementation science. It considers that there is robust scientific evidence on the nutrition recommendations necessary to promote and support health and well-being. However, a core outstanding challenge is effectively translating these recommendations into policy, practice and everyday dietary behaviours and choices. Therefore, by bridging the gap between science and practice, this research will enhance the overall health impact of nutritional science through the identification of implementation processes and tactics that can maximize the adoption, reach, and effective utilization of interventions. The research also applies evidence-based approaches when implementing and sustaining interventions across personal, clinical practice, and policy settings by using established models and engaging stakeholders using participatory action research approaches. Additionally, it addresses the challenges faced by practitioners in education, medicine, and dietetics when implementing nutrition-focused policies in real-world practice settings.

Domain 3, Focus 1. To explore the unique challenges that education, medical, and dietetic practitioners face when implementing nutrition-focused policies and recommendations into practice. This research includes developing and evaluating innovative strategies to support and sustain implementation efforts.

Approaches. This research will draw on the principles of implementation science and apply a variety of frameworks and theories, guided by the setting and implementation challenges. Study designs and outcomes will be informed by research questions and may

include qualitative studies, mixed methods studies, surveys, Delphi studies, quasi-experimental designs, and intervention studies. In addition to identifying barriers and facilitators to implementation, iterative feedback loops will provide key data needed to develop, tailor, and adapt implementation strategies and explain implementation outcomes. End users and stakeholders will be integrated throughout the research process to maximize the relevance and impact of the data. This research may also include systematic reviews to understand the totality of evidence on the implementation of specific intervention types, enabling the development of new and innovative strategies to advance the field.

Example of Domain 3, Focus 1

Healthcare providers' perceptions of barriers, facilitators, and acceptability of an eHealth resource
Breastfeeding is the recommended infant feeding method by all leading health authorities due to its importance to the health of women and their infants. Although the majority of Canadian women initiate breastfeeding, the rates remain suboptimal. Many women experience breastfeeding difficulties leading to premature supplementation and cessation. Additionally, they report receiving insufficient support from healthcare providers (HCPs) with conflicting information. To address this long-standing clinical issue, Dr. Jennifer Abbass-Dick's program of research has focused on working in a participatory manner with parent populations (couples- mothers and their co-parents, Indigenous families, and young, single mothers) and HCPs to create evidence-informed breastfeeding eHealth resources. These resources have been evaluated and are currently being implemented in clinical settings with partnering hospitals and the health department to standardize breastfeeding education across a health region. To address the effective implementation of the eHealth resource in clinical practice, Dr. Abbass-Dick conducted a needs assessment with HCPs to determine the barriers, facilitators, and perceived acceptability of the eHealth resource. HCPs completed an online questionnaire informed by the Consolidated Framework for Implementation Research. HCPs agreed the resource was credible, up to date, covered relevant topics, would ease their ability to provide breastfeeding education, and would increase consistent messaging. Concerns were expressed regarding how this would be used in clinical interactions due to challenges with navigation, searchability, and the large amount of content. In response to these findings, funding has been received to survey and interview healthcare providers and parents to determine the adaptations needed to inform the implementation process, specifically how this eHealth resource can best be used in clinical interactions. This research can significantly improve breastfeeding education and support across the perinatal period and increase parents' breastfeeding health literacy and ability to meet their infant feeding goals. Dr. Abbass-Dick has significant leadership in this area, founding and leading the Canadian Breastfeeding Research Network and a breastfeeding resource website for the public.

Abbass-Dick, J., et al. 2024. Health care providers' perceptions of barriers, facilitators, and acceptability of an eHealth resource: Descriptive study. International Health Trends and Perspectives, 4(1), 68–87.

Abbass Dick, J., et al. 2018. Designing an eHealth breastfeeding resource with Indigenous families using a participatory design. Journal of Transcultural Nursing: 29(5):480-488.

Abbass Dick, J., et al. 2017. The development and piloting of an eHealth breastfeeding resource targeting fathers and partners as co-parents. Midwifery, 50, 139-147.

Domain 3, Focus 2. To develop, test, and evaluate the impact of novel interventions, with an emphasis on those that use technology and AI, that support the implementation of clinical, public health or education-based guidelines and policies by practitioners. This

research includes examining strategies for implementing, scaling, and sustaining eHealth nutrition interventions in personal, clinical practice, and policy settings.

Approaches. The approaches and study designs used will be similar to those described in Domain 1 (Focus 3) and Domain 2 (Focus 3). Given the pragmatic nature of this research, an interdisciplinary approach be critical. Likewise, the rigorous use of iterative feedback loops will enable the research to be more responsive, equitable, and adaptable to real-world needs. This research will also engage stakeholders in a participatory-action research approach that emphasizes the importance of co-production, where knowledge users (e.g., public/citizens, decision-makers, practitioners, and researchers) are integrated into every stage of the research process. This process will support health equity and enable the integration of diverse perspectives, worldviews, and social/cultural norms into how we understand, develop, implement, and sustain the implementation of interventions over the long term. Research designs are typically applied considering the phase of research and include qualitative studies, mixed methods studies, cross-sectional designs such as surveys, pilot/feasibility studies to establish proof of concept, and pragmatic randomized controlled trials.

Example of Domain 3, Focus 2

Development, evaluation, and future implementation of Foodbot Factory, a curriculum-based nutrition education in elementary schools

Developing food literacy (i.e., the interrelated set of knowledge, attitudes, skills, and behaviours required for healthy eating) among children has been identified as a public health priority due to its association with healthy eating habits. To support the development of children's food literacy, specifically their nutrition knowledge, Dr. Arcand's research team has developed and tested a curriculum-based nutrition education intervention called Foodbot Factory. It facilitates nutrition education for children in Grades 4 and 5, created in collaboration with Dr. Bill Kapralos, Dr. Ann LeSage and Dr. Janette Hughes (funded by an Ontario Research Fund - Research Excellence grant). The content in Foodbot Factory aligns with Canada's Food Guide and the Ontario Health and Physical Education curriculum. It consists of a serious game played as a mobile app, and includes accompanying lesson plans for teachers to use the intervention in their classrooms. Pilot studies in a test environment showed Foodbot Factory resulted in greater nutrition knowledge, compared to a control intervention. Now, with CIHR funding, the efficacy of Foodbot Factory is being evaluated as part of a cluster randomized controlled trial in classrooms across Ontario. Alongside this work, qualitative interviews are being conducted with classroom teachers to guide implementation strategies for scaling up the Foodbot Factory in Canadian classrooms. This research has the potential to significantly improve the implementation of health education curricula in Canada by supporting student learning about nutrition and enabling the development of lifelong healthy eating habits.

Franco-Arellano, B., et al. 2023. Updating the Foodbot Factory serious game with new interactive engaging features and enhanced educational content. Applied Physiology, Nutrition, and Metabolism, 49(1), pp.52-63.

Brown, J.M., et al. 2020. Optimizing child nutrition education with the Foodbot Factory mobile health app: formative evaluation and analysis. JMIR formative research, 4(4), p.e15534.

Froome, H.M., et al., 2020. The effectiveness of the Foodbot Factory mobile serious game on increasing nutrition knowledge in children. Nutrients, 12(11), p.3413.

Research Domain 3 - Examples of Research Looking forward:

- Evaluate the implementation of a breastfeeding eHealth resource in clinical settings to increase breastfeeding health literacy and rates.
- Examine the barriers and facilitators nurses experience in providing nutrition education of people with intellectual and developmental disabilities.
- Examine Registered Dietitians use and trust in technology-based practice tools, and the barriers and facilitators to their implementation.
- Co-create, evaluate, test, and implement a plan to support the scalability and sustainability of Foodbot Factory intervention in diverse Canadian classroom settings.
- Develop a nutrition curriculum with teachers as part of the national delivery of school food programs to address students' knowledge, attitudes, and behaviour.
- Develop and test, with teachers, tools to support the implementation of curriculum-based nutrition education (e.g., an online repository of training resources, etc.).
- Research to support the implementation of eHealth tools in primary care practice and community settings: Sodium 101 website and the Sodium Calculator+.
- Assess the implementation of a mobile app intervention for parents to that supports the healthfulness of school-boxed lunches by employing machine learning to analyze parent and student behavioral data including factors influencing choices

4.2. Explain how the research activities align with Ontario Tech's Strategic Research Plan.

The ICPNT will undoubtedly contribute to advancing Ontario Tech's research mission and strategy through its alignment with several research priorities and core research values.

Healthy population, community well-being, and social justice

The ICPNT's mission to improve the health and well-being of populations and communities locally, nationally, and internationally through visionary and innovative interdisciplinary nutrition research wholly aligns with the Ontario Tech strategic research priority (2020-2025) of *healthy population, community well-being, and social justice* and will contribute to advancing Ontario Tech's research mission and strategy. This priority calls for scientific discovery focused on human health and well-being, including using research synergies to strengthen contributions to global public health and health promotion while supporting national and international collaborations. ICPNT will support this priority by focusing on nutrition-related public health and health promotion research and will bolster Ontario Tech's reputation for high-quality socially conscious research by concentrating on factors contributing to disparities and inequities in nutrition (Section 4.1).

Tech with a conscience

Technology is incorporated into the mission statement and will form a core value of the ICPNT through the integration and application of technology whenever appropriate. As such, ICPNT research activities will contribute to the realization of the University's

institutional priority of *tech with a conscience*. The concept of *tech with a conscience* is highly relevant to the ICPNT's mission of using innovation in research to address pressing real-world social and health challenges currently facing Canadians and people worldwide. The ICPNT will strive to be *inventive* and *imaginary*, incorporating technological advancements into traditional nutrition interventions. Technology will be developed with interdisciplinary teams using thoughtful, evidence-based approaches that consider the latest frameworks, theories and health behaviour change strategies. Technology will also be informed and driven by the needs of external partners and end-users who are integrated into the design and evaluation processes. These are critical considerations to ensure that tech is developed and implemented in a meaningful manner that maximizes effectiveness and enables adaptability and sustainability in the long term, avoiding the trendy and/or gimmicky attributes that have flooded the nutrition technology marketplace.

The ICPNT members already embody the *tech with a conscience* value, and they have a strong track record of using technology in their research and dissemination. Members with technology as a core research focus include Dr. Kapralos, Dr. Hughes, Dr. Sun, Dr. Arcand, Dr. Abbas-Dick, Dr. Ahmed and Dr. L'Abbé. The use of technology in research is described in detail in the Research Mandate in Section 4.1: Domain 1 (Focus 3), Domain 2 (Focus 3) and Domain 3 (Focus 2). Some examples of technology created by the ICPNT faculty members include eHealth tools such as websites, web apps and other software (e.g., https://breastfeedinginfo.ca/, https://www.breastfeedingresearchers.ca/, https://fknm-test-deployment.vercel.app), mHealth tools such as apps for phones and tablet (e.g., Foodbot Factory, FoodFlip, Sodium Navigator HF), and other tools such as educational videos (e.g., Breastfeeding Information for Parents), and research innovations (e.g., Global Nutrient Profiling Calculator Tool, AI-based prediction models for food classification and nutritional quality). These tools have integrated immersive realities (virtual and augmented reality), wearables, AI, gamification, and behaviour change theory and strategies. Existing tools are continually enhanced to avoid obsolescence.

The ICPNT members incorporate technology and AI into their research in different ways. By way of some examples from the three ICPNT scientific leads, Dr. Arcand focuses on the development and evaluation of novel eHealth and mHealth theory-based behavioural nutritional interventions for both adults and children. She has received approximately $1.4 million as Principal Investigator for tech-based nutrition research. For instance, the Sodium Calculator developed by Dr. Arcand has estimated sodium intakes for over 500,000 users. In addition, her team's Foodbot Factory app has received in-kind support from Health Canada, since the tool is viewed as a strategy to support the national implementation of Canada's Food Guide for teachers and children. Dr. Arcand is also examining the public's interaction with technology as a source of nutrition information, including the spread and uptake of nutrition mis- and dis-information, an identified global public health priority as highlighted by the WHO Infodemic initiatives. Her planned research will also examine Registered Dietitians use and trust in technology-based practice tools, and the barriers and facilitators to their implementation. This is a critical consideration so that the dietetic practice can advance with the emergence of AI-based

nutrition interventions. As another example, Dr. Ahmed has recently completed postdoctoral training in Nutrition and AI and applies AI to research data collection and analysis, in addition to developing and evaluating population-based mHealth interventions to support healthy food choices. She has recently led practice-changing research demonstrating how AI can be leveraged to collect nutrition composition data from the internet. Dr. Abbass Dick is leading internationally recognized efforts that use technology to support perinatal families with breastfeeding. For example, the breastfeeding-related website developed by Dr. Abbass Dick is freely accessed by over 500 users a month and the related educational videos include one with over 6.7 million views.

Equity, diversity, and inclusion

EDI will be integrated into every facet of the ICPNT, from the development of the ICPNT itself to training activities, research planning, and research dissemination. The nature of the ICPNT's research projects supports the University's commitment to EDI by exploring and intervening in factors that impact nutritional inequities and disparities. The ICPNT will foster an inclusive culture where distinct ideas, contributions, and different ways of knowing are valued, which also meets the core research value of being *integrative* and contributes to the Ontario Tech mission of *creating a sticky campus* (expanded upon below). The ICPNT will be composed of members and trainees with diverse research expertise, academic training, backgrounds, workforce experience, and lived experiences. Trainees working in the ICPNT will be recruited with the consideration of enhancing the diversity of perceptions and lenses by recruiting from other universities and internationally, with advertisements directed to diverse candidate pools using non-gendered, inclusive and unbiased language that explicitly states the ICPNT's commitment to EDI. Members of the ICPNT will complete EDI training and unconscious bias training. Most of the ICPNT faculty members have an EDI plan for their research program.

Health disparities and equity will be a cross-cutting theme across all research areas (Section 4.1). This consists of accounting for nutrition security which includes the identification of nutrition-related structural and social inequities experienced by groups who may be disproportionately impacted by disparities in the access, availability, affordability, and utilization of foods that impact dietary intake patterns and diet quality, as well as conducting analyses on traditionally underrepresented groups (and their intersectional identities) such as women, gender minorities, persons with disabilities, Indigenous Peoples, racialized individuals, 2SLGBTQIA+ communities, persons in low- and middle-income countries; and others that may be at relatively higher nutritional risk and/or more likely to experience food insecurity such as college and university students, older adults and single-parent families. EDI in the research design will be guided by Gender-based Analysis Plus and Tri-agency Best Practices.[30, 31] EDI principles will be integrated into each phase of research project planning, including the literature review, study design, recruitment and sampling procedures, randomization, statistical analyses, and reporting and presentation. Research at the ICPNT will emphasize the use of co-creation and participatory approaches that place end-users at the centre of the research - enabling action through a research cycle that is reflective, iterative and draws on different

perspectives. This approach speaks to equity by seeking to understand the unique drivers and challenges related to healthy eating, especially those in under-represented subgroups who may be differently impacted by interventions. All team members on a research project who meet ICMJE authorship criteria will have an opportunity to be included as co-authors on publications, regardless of training level. The ICPNT Scientific Executive Committee (Section 8.2) will appoint an equity, diversity, inclusion, indigenization, and accessibility (EDIIA) champion, with the primary responsibility of raising EDIIA issues for discussion.

Engaging communities where they live, work, and play

The use of co-creation and participatory approaches will also ensure the ICPNT research *engages communities where they live, work, and play (Core Research Value)* so that initiatives are more practical, sustainable, and impactful. The Co-produced Pathway to Impact framework[32] enables integrating diverse perspectives, worldviews and social/cultural norms into how we understand, develop, implement and sustain interventions (expanded in Section 6). A key example of the co-participatory action research the ICPNT will undertake is with the Toronto District School Board to assess the impact of school food nutrition programs (Domain 2). Our intervention research will enhance engagement by addressing local needs and priorities, and reaching people in their everyday environments through collaborations with schools, workplaces, and health organizations, online and social media engagement, and tailored communications that are linguistically and culturally appropriate. With this in mind, the ICPNT will collaborate closely with our local research partners when operating in different geographical contexts (e.g., LMIC, LAC), and our digital innovations will be disseminated widely by being freely accessible and equitably incorporated into school and health systems. This approach will take advantage of the widespread availability of technology in these settings and in Canadian homes.

Partnership-building and collaboration

Ontario Tech has highlighted its commitment to fostering multidisciplinary efforts with its institutional priority of emphasizing *partnership-building and collaboration*. In 2023, Ontario Tech's strategic commitment to involving industry, community, and government partners in collaborative, responsive and result-driven research earned them the distinction of Canada's Research University of the Year among smaller institutions. The ICPNT will help sustain this recognition by emphasizing research that keeps end-users at the forefront, utilizing co-creation and participatory research methods (Section 4.1). The ICPNT is being established by a team with numerous and strong relationships with external academics, government, and health organizations that extend well beyond Canada. The ICPNT will support existing partnerships and stimulate new connections by drawing from the members' networks and the extensive system of partners associated with Ontario Tech, including the newly established partnership between Ontario Tech and Lakeridge Health. Partnership building and collaborations will be crucial to the ICPNT for co-producing research projects of high relevance to knowledge users (Section 4.1), recruiting and training students (Section 5), and disseminating results (Section 6). Additional details on partnerships and collaborations in the ICPNT are presented in Sections 3.2 and 7.

Training and capacity-building
Another Ontario Tech institutional priority core to the ICPNT includes *training and capacity-building*. The ICPNT is committed to nurturing the next generation of exceptional health researchers who grasp the importance of and know how to engage in interdisciplinary collaborations that are essential to addressing complex nutrition problems. Ontario Tech's core mission to *cultivate a dynamic learning environment for students* will be supported through the ICPNT's incorporation of experiential learning opportunities where students can combine in-class concepts and reflectivity to help solve real-world nutrition problems. Further details on training and capacity building are in Section 5.

Creating a sticky campus
We anticipate that the ICPNT will play an integral role in heightening the visibility of nutrition on the Ontario Tech campus and ultimately enhancing the overall university experience for students, helping to create a *sticky campus*. This is especially important given the rise in food insecurity on university campuses, including Ontario Tech. In terms of nutrition initiatives, Ontario Tech has fostered belonging and engagement through a variety of initiatives. These include the Peer Wellness Education Team where Dr. Arcand has advised on nutrition, as well as a community garden from which excess produce is donated to local food banks and soup kitchens. There are also a variety of food donation drives on campus; but these are not frequent enough to match the food insecurity issues our campus faces, and there is student food bank. Collectively, the ICPNT members and trainees can more strongly advocate for such important initiatives on campus. Addressing hunger will not only improve health and quality of life, but also student academic achievement. Such activities not only enhance the learning and engagement of students but also work towards the UN SDGs (SDG 2). We envision that the ICPNT will be able to act as a resource to lead or inform other campus-based nutrition interventions and improve university food policy to ensure high-quality, accessible, and affordable food options are available on campus. Furthermore, the ICPNT will support student-based initiatives related to nutrition, such as the Canadian Nutrition Society University Student Rep program and the Obesity Canada Student and New Professional university representative program.

4.3. Provide evidence for long-term sustainability of the entity, including research activities that go beyond collaboration on a single project.

The ICPNT is being developed with the expectation that it will remain both relevant and sustainable in the long term. This forward-looking approach involves ensuring that it operates efficiently and contributes to the field of nutrition through strategic collaboration, effective capacity building, and high-quality research.

Strong Management and Governance: The sustainability of the ICPNT will be enhanced through strong resource management and a solid management plan that outlines the organizational and governance structure (Section 8). With ICPNT membership including

the leads of two other Centres at Ontario Tech (i.e., CDIE, ADCC), we bring established expertise in the development and management of research centres, which we will apply to ICPNT from its very foundation. While the CDIE is newly established, the ADCC has been successfully running for nearly two years under Dr. Sun's leadership and has already shown progress on research initiatives looking at virtual reality applications to promote the social connectedness of persons with dementia and leveraging AI and a conversational robot to detect and manage symptoms of dementia. The ADCC also recently secured a CIHR Planning and Dissemination grant for "Participatory Approaches to Building Partnerships: Advancement for Dementia Care Centre" and was featured in the Ontario Legislative Assembly in October 2023 where Lorne Coe (MPP, Whitby, ON) highlighted the critical importance and potential impact of the ADCC. The previously described partnerships and collaborations will also be essential for the sustainability of the ICPNT by ensuring the relevance of research projects and the wide dissemination of outputs.

Funding Strategy: Securing external funding will provide a continuous stream of resources to support the ICPNT's research and training activities (Section 8.3.3). Members of the ICPNT have demonstrated their potential for success in securing funding from various sponsors, including federal (CIHR, Social Sciences and Humanities Research Council (SSHRC), Natural Sciences and Engineering Research Council of Canada (NSERC), International Development Research Centre, Public Health Agency of Canada, Health Canada, EduCanada), provincial (Government of Ontario, Ontario Centres for Innovation, Saskatchewan Health Research Foundation), NGOs and not-for-profit (WHO/PAHO, Heart & Stroke, Canadian Stroke Network, Retail Council of Canada, Special Olympics Canada), and industry partner (Manulife) sources. Combined, ICPNT members have collectively secured more than $14 million in total research funding as principal applicants or investigators (PIs) from all sources. The ability of the members to jointly obtain funding is evident from the numerous successful grant applications that they have worked on together in the past (Section 3.2). The ICPNT will emphasize the pursuit of all relevant funding opportunities, including those that value an interdisciplinary approach (e.g., New Frontiers in Research Fund, Canadian Foundation for Innovation) beyond just tri-agency council grants, and through industry partnerships. Each member will act as the lead within their respective research domains but will utilize the collective knowledge of all members to enhance their proposals through internal peer review. Our members, in addition to having secured a substantial amount of funding, are also versed in reviewing grants and awards applications for national granting agencies. Furthermore, all students working with The ICPNT will be encouraged to apply for scholarships and will be given mentorship in developing their applications. Encouragement and mentorship are critical for promoting equity, particularly because women, a primary demographic in the nutritional sciences, often undervalue their abilities and past successes.[33] ICPNT members will also actively fundraise to support ICPNT work. Our members have demonstrated success in securing donations and contracts in the past, such as a $120,000 donation from Manulife to Dr. Arcand's lab and $120,000 to $150,000 contracts, annually, from the WHO/PAHO to the WHO Collaborating Centre on Nutrition Policy for Chronic Disease prevention. Philanthropic donations could provide opportunities for individuals or organizations to

become named sponsors of the Centre, and the funds raised can be used to support the operations of ICPNT or to establish a Research Chair position linked to the Centre. There may also be opportunities to create a revenue stream through the members' eHealth and mHealth tools. For instance, while the tool itself will remain freely available, a small fee for teachers and parents to access educational resources accompanying the Foodbot Factory could be implemented. A teacher training program in nutrition, potentially co-developed with the CDIE, could be used to further diversify funding sources in the future.

Capacity Building and Student Training: The sustainability of the ICPNT will be enhanced through capacity-building and collaboration. The *ICPNT* will augment a strong foundation of expertise by recruiting and training talented students and creating a supportive learning environment (Section 5). Our members have collectively supervised or are currently supervising 156 students at the graduate level, as well as numerous undergraduates, post-doctoral fellows, interns, and research associates. We are certain that the ICPNT will continue on this trajectory and foster the attraction of new students, which will enhance the reach of the Centre by expanding its network as students transition into their careers.

Strong Research and Strategic Recruitment: The potential for the ICPNT to conduct high-quality research is undeniable, given the prior success of its members which includes many awards of recognition within Ontario Tech, provincially, nationally and globally. The ICPNT members' short bios are provided in Section 7. The ICPNT does not require the addition of new faculty for its successful launch. However, continued growth and sustainability of the ICPNT in the long-term would benefit from the strategic recruitment of nutrition-focused faculty members (new and to replace recent retirements), especially those whose research aligns with the ICPNT research mandate (e.g., nutrition and AI) and/or that compliments existing disciplines or expertise within the Faculty of Health Sciences (e.g., nutrition and aging, nutrition in persons with disabilities). An ideal strategy would be to incorporate an Associate Professor with an established research program, providing instantaneous benefits to the ICPNT, and an Assistant Professor who would promote sustained development.

5. Student Involvement and Training

5.1. Explain the level and type of involvement of undergraduate or graduate students in the entity's activities. Describe the unique research and training opportunities that will arise as a result of the entity.

It is paramount that future researchers are equipped with diverse research and leadership skills to tackle complex nutrition problems. The ICPNT will ensure this need is met through various avenues. The ICPNT faculty members will be committed to recruiting all levels of trainees on an annual basis. The ICPNT will work to attract top talent to Ontario Tech by bringing trainees in through our member networks and external collaborators and partners. Aligned with our commitment to EDI, the ICPNT will actively facilitate the recruitment of individuals with diverse perceptions and lenses by recruiting from all faculties, other

universities, and internationally. This approach builds on the leadership strategy of Dr. Arcand, who has successfully recruited 81% of her graduate students and postdoctoral fellows from other universities. The ICPNT will also welcome visiting scholars from other countries to promote mutual learning opportunities in which the visiting scholar will gain a better understanding of the Canadian research environment while bringing diversity and fresh insights into the training environment for local students. Visiting scholars will help to develop a more globally connected research environment that fosters collaboration with researchers abroad. Recruitment from various faculties will not only contribute to the diversity of the research team but will also foster cross-disciplinary collaboration. The ICPNT members will have the opportunity to co-supervise students from other faculties, or participate as thesis advisory committee members, enabling a truly integrated research approach. Our members have experienced previous success with cross-faculty trainee supervision, such as developing the Foodbot Factory (Section 4.1), where students from the Faculty of Business and Information Technology played key roles in a nutrition-focused project. Building on this success, there are already plans to engage Faculty of Business and Information Technology students in nutrition capstone projects in 2025.

A goal of the ICPNT will be to foster equal opportunities and a sense of belonging for all by building an inclusive culture that values distinct opinions, inputs, contributions, and different ways of knowing. By working closely with the ICPNT members and partners, trainees will learn the importance of interdisciplinary research. They will get to explore diverse perspectives that will deepen their understanding of and appreciation for a vast range of knowledge approaches. Collaboration with peers from other disciplines, such as public health, health sciences, education, and technology, will offer opportunities for reciprocal learning and will broaden their understanding of the intersection between nutritional sciences and other sectors, while also growing their research network beyond their primary field of study.

The ICPNT will engage trainees in a wide range of activities, offering unique research and training opportunities that are critical to developing the next generation of outstanding researchers. The trainee experience will be enriched by participating in experiential learning. Trainees will learn about the research process by being actively involved in projects, taking on roles that involve identifying research questions, conceptualizing studies, collecting and analyzing data, interpreting results, and disseminating findings. Specifically, trainees will gain skills in conducting systematic/scoping reviews, policy and intervention creation and analyses, and dietary and epidemiological cross-sectional studies, to name a few, using qualitative, quantitative, mixed methods, and co-participatory approaches. During the process, they receive training on using relevant analysis software such as R, SAS, SPSS, and NVivo. As part of a larger team, trainees will collaborate on other ongoing studies that may involve app development, experiments, surveys, or fieldwork. Trainees will be directed to EDI and sex and gender-based analyses modules and resources (e.g., CIHR Unconscious Bias training, Women's College Hospital's Intersectionality as a Research Lens training, CIHR Institute of Gender and Health's training, anti-oppression training, Canadian Nutrition Society's Nutrition and

Indigenous Health) and other research and career resources (e.g., SickKids knowledge translation and research integrity training, Ontario Tech career development resources, Research Impact knowledge mobilization training). Trainees will build on their knowledge mobilization (KMb), presentation and networking skills by translating their work for various audiences (e.g., policymakers, the public, clinicians), publishing in academic journals, and presenting their research in at least one national and international conference per year. In time, with philanthropic and other resource investments in the ICPNT, we will offer travel awards to trainees to attend national and international conferences (see Budget). To demonstrate the ICPNT's commitment to supporting the development of scientific independence among postdoctoral fellows (and early career researchers), we will allocate $10,000/year of any philanthropic donations obtained to supporting new projects or seed funding that align with the areas of the ICPNT (see Budget and Section 8). Finally, trainees will have the opportunity to be the first author on publications for the studies where they lead the research design, data collection, analysis or writing. KMb activities will provide trainees with insights into how their research can be applied in real-world settings and how it can address practical challenges. The emphasis on technology across all research domains will further equip students for the future by providing them with exposure to state-of-the-art innovations in the field of nutrition.

Graduate students and postdoctoral fellows will be encouraged to build valuable skills in leadership by mentoring other students and through teaching opportunities, either as teaching assistants for nutrition courses, guest lecturers, sessional lecturers, community guest speakers, or by presenting in quarterly student seminars (expanded in Section 5.2). Graduate students and postdoctoral fellows will be tasked with developing skill-building workshops as part of these seminars for trainees to gain insights into nutrition and research topics. Seminar workshop planning would include identifying relevant topics, defining learning objectives, creating content, facilitating the workshop, and collecting participant feedback. Graduate students and postdoctoral fellows will also be trained in the development of grant proposals to foster critical thinking and grantsmanship skills. The ICPNT will commit to this by having at least one student involved in every grant submission, who will attend meetings and will review or contribute to writing and submitting the proposal.

The Centre will also offer an engaging environment for student placements and internships to meet critical professional competencies (e.g., dietetic internships supervised by a Registered Dietitian, Master of Science in Nursing project placements, medical student internships). As a Registered Dietitian, the ICPNT Director has previously supervised dietetic interns completing research-based practicums and is committed to mentoring and guiding the next generation of dietitians. These interns will have a unique opportunity to participate in remarkable research studies that can have a direct impact on dietetic practice (Section 4.1; Domain 3). The ICPNT will also be an ideal environment for registered dietitians wanting to complete graduate studies. Registered Dietitians will bring a wealth of rich experiences to the training environment and will be ideally positioned to help answer important practice-based research questions. Dr. Arcand has successfully

supervised four registered dietitians completing graduate studies and continues to be approached by others.

All leadership, collaboration, teaching, and research activities will be guided by close mentorship from ICPNT members. The ICPNT will offer valuable learning opportunities tailored to the trainees' needs, interests and career aspirations as determined using the CIHR Individual Development Plan tool and the Declaration on Research Assessment (DORA).[34] All trainees will have access to a network of ICPNT members and peers for support with research, writing, and career development. These connections will be facilitated through regularly scheduled meetings, social activities, and the use of collaborative platforms (e.g., Slack, Google Workspace) where trainees can meet, ask questions, help their peers, share documents, and seek feedback. Trainees will also be encouraged to collaborate through training platforms such as SMART (https://smart-training.ca/). Students will graduate from their program of study experienced in a field of critical significance within Canada and worldwide, equipped with strong research, communication, leadership, problem-solving, networking, and critical thinking skills, preparing them to transition seamlessly into the workforce.

Monetary support for trainees will also be prioritized. The ICPNT will offer stipends to supplement typical funding packages for graduate and postdoctoral fellows to boost student engagement and attract top candidates when funds are available. Undergraduate research assistants will be hired to work on research projects as the opportunity arises. Research grant funding will be used to provide for trainees attending conferences where they present their work. The ICPNT will endeavour to establish scholarships for students as fundraising initiatives show success.

5.2. Describe the contribution, if any, to the development of new courses, seminars, or instructional programs in collaboration with the appropriate Faculty/ies.

The ICPNT will offer a seminar/workshop series for trainees that alternates between opportunities for trainees to present their research activities and skill-building workshops. Initially these seminars will be offered quarterly, and more frequently as the ICPNT becomes established. The research seminars will act as a forum for students to receive constructive feedback and discuss methodological concerns with their peers, faculty members, and other interested researchers. The workshops will teach students about relevant research topics (e.g., research ethics, research methodologies, literature appraisal, nutrition trends, technological advancements, scholarship writing, literature reviews, R coding). These will be particularly useful for undergraduate students coming from disciplines other than nutrition or with limited research experience to gain a baseline understanding of the concepts and ideas underpinning the ICPNT research.

As the ICPNT is established and internal capacity grows through collaborations and the hiring of new faculty to replace recent retirements, new courses in nutrition would be developed to supplement the introductory nutrition course that is already mandatory for

most programs in the Faculty of Health Sciences. The latter underscores the faculty's commitment to nutrition and its vital role in the health sciences field. Each course developed through the ICPNT will add to this foundation, offering students enriched learning opportunities. Looking ahead, the ICPNT will consider the following:

- A senior public health nutrition course focused on food and nutrition policy at the undergraduate and/or graduate level. Dr. Ahmed created a similar course on this topic at York University for School of Kinesiology and Health Science (KINE4170). This course has been highly rated by students and offered every year since its development with full class enrolment. This course strongly aligns with Research Domain 1 (Section 4.1).
- Senior lifecycle nutrition course at the undergraduate and/or graduate level. Such a course has been of interest to students in public health, nursing, and kinesiology and it is continually requested on course evaluations for introductory nutrition courses taught by Dr. Arcand. This course strongly aligns with Research Domain 2 (Section 4.1).
- Micro-credentials in Nutrition. The ICPNT will draw from Dr. Sun's experience developing the dementia care micro-credential program in collaboration with Ontario Shores Centre for Mental Health Sciences and the Alzheimer's Society of Durham Region. Similar to the program developed by Dr. Sun, micro-credentials in nutrition could be used to enable competency development among trainees and/or healthcare professionals.

6. Research Dissemination and Service Plan

Describe any unique plans for dissemination of research, and/or how the research entity will provide service and impact programs and policies within UOIT and to the outside community.

Meaningful partnerships with community, industry, government, non-profits, and NGOs will maximize the Centre's exposure and strengthen our research impact. The ICPNT will utilize an integrated knowledge translation strategy following the Co-produced Pathway to Impact framework,[32] with knowledge translation being considered throughout the research cycle by collaborating with knowledge users in the co-creation of research (e.g., study design, methods, tools, recruitment, analysis), dissemination, uptake, and implementation process. Using participatory approaches and iterative feedback loops, co-produced research is more responsive, equitable and adaptable to real-world needs. This includes coordinated opportunities for researchers to have an impact by sharing their outputs with decision-makers (producer-push) and for decision-makers to inform the research (user-pull).[35] As seen with other public health efforts,[32] such infrastructure can effectively foster collaboration between researchers and knowledge users to increase research relevance, adaptability, and support for dissemination of the research outputs to organizational networks, accelerating research impact. Subsequently, health, education, and policy knowledge users can integrate the ICPNT research outputs into products, policies, and programs that benefit end users. They will serve as knowledge brokers via their expansive networks that reach end users, including the public. The ICPNT will also

follow the framework of Lavis et al.[36] by asking questions about What should be transferred to decision-makers (message). To whom should the knowledge be transferred (audience)? By whom should the knowledge be transferred (messenger)? How should the knowledge be transferred (process, tactics)? With what effect should the knowledge be transferred (evaluation)? The answers to each of these will vary by intended impact, audience, and setting (Table 1).

Table 1. Proposed knowledge mobilization strategies

Audience	KMb Goals	Dissemination Tactics	Evaluation Metrics
Public	To increase awareness and interest in nutrition and the need for nutrition policies. To improve food literacy to address misconceptions. To support engagement through information sharing and the use of ICPNT digital interventions.	Media releases (newspaper, magazines), social media and website content (posts, videos, infographics), WHO Infodemic report.[37] Integrate digital tools in existing infrastructure in diverse public settings, such as schools, libraries, community centres, pharmacies, grocery stores, and in health care.	# website visits, social media engagement, # uses/downloads of digital interventions, # products disseminated by KMb partners
Decision makers, government, non-governmental organizations	To inform decision-making and policy change (e.g., school food and beverage policies, national food policies). To enhance the implementation of population-wide nutrition strategies.	Synthesis documents, technical reports, policy briefs, newsletters that communicate study results and totality of the issue. Scheduled meetings with health and education decision makers at the national, provincial/ territory/ state level and with local school boards administrators where applicable. Outreach activities.	# products disseminated by KMb partners, # of policy/program changes related to the research outputs, # of communications and meetings, # of event attendees
Practitioners in public health, health care, and education	To increase awareness of the importance of dietary risk factors for well-being, chronic disease prevention and management. To support practitioners in being sources of credible information. To increase the use of our evidence-based digital tools in teaching and health practice.	Editorial, commentary and review articles in journals and newsletters; LinkedIn and X posts. Systematic reviews on nutrition and health written in language easily understood by stakeholders with varying levels of scientific literacy. Communication messages developed and sent to partners	# website visits, social media engagement, # uses/downloads of digital interventions, # products disseminated by KMb partners, # of event attendees

		(e.g., school boards, public health care organizatons). Conference symposium and panel presentations. Outreach activities.	
Researchers	To share new knowledge (methodologies, findings, KMb) and advance the field.	Peer-reviewed publications, conference abstracts, and symposium presentations in national and international conferences. Outreach activities.	# publications, # abstracts, # presentations, # new collaborations, # new or refined IP products, # of event attendees

Traditional academic dissemination activities are a forte of the members of the ICPNT. Collectively, the ICPNT members have demonstrated outstanding productivity with >760 published journal articles, 31 books, 88 book chapters, 96 technical reports, and hundreds of conference abstracts and presentations. The ICPNT research findings will be incorporated into teachings at Ontario Tech, with the anticipation that it will expand the reach of the ICPNT outputs and attract interested trainees. Our members have been responsible for teaching a combined 57 different undergraduate and graduate courses at Ontario Tech, including *Nutrition for Nursing Practice*; *Nutrition and Health; Health and Healing: Healthy Communities Nursing Theory and Practicum; Nursing Leadership and Innovation; Research Approaches for Nursing and Health Sciences; Information Literacy; Digital Literacies: Theory, Practice and Research; Technology and the Curriculum; Leadership and Technology; Topics in Digital Media; Virtual Reality and User Interaction; Environmental Determinants of Health, Applied Biostatistics for the Health Sciences,* and many others.

Our members are also well-versed in less traditional forms of dissemination, including through website development (e.g., https://breastfeedinginfo.ca/, https://www.breastfeedingresearchers.ca/, https://fknm-test-deployment.vercel.app), educational videos (e.g., Breastfeeding Information for Parents), digital innovations (e.g., Sodium Calculator, Foodbot Factory, FoodFlip, Global Nutrient Profiling Calculator Tool; Sodium Navigator – HF), and media coverage. A dedicated ICPNT website and social media accounts (e.g., X, LinkedIn), will be used to share the mission of the centre and the research outputs to enhance the visibility of the ICPNT's achievements. Social events will also provide a chance to inform community members about the ICPNT, share our research initiatives and results, promote discussion, and attract interested trainees.

7. Membership List, CVs and Affiliations

Provide the name, faculty (or institutional affiliation), Curriculum Vitae, and expected contribution of members. (Research entities shall not normally require the hiring of new

full-time academic faculty. Each member, including the director, should hold an academic appointment at the university).

Work at the ICPNT, as well as the ICPNT management itself, will leverage the extensive past experiences and networks of our members. The 9 members of the ICPNT include the Director, Dr. JoAnne Arcand, and 8 core scientists who are faculty members (Table 2). Short bios of each of the members are provided below. The responsibilities of conducting research, seeking funding, and overseeing the supervision of trainees will fall on each scientific lead in their respective domains, with overlap and collaboration where relevant. Research experts will contribute to the ICPNT across domains, imparting their expertise in areas of health technology, education, nutrition policy, and research methods. All members will have the opportunity to impart their experiences and perspectives throughout the development of research proposals and during the research process.

Members will closely collaborate with faculty and students affiliated with Ontario Tech, as well as a number of external partners including leading experts and stakeholders in Canada and beyond (see Box 1). These connections will be instrumental for recruiting students and trainees (Section 5), uptake of the research (Section 6), and co-creation of research activities (Section 4).

Table 2. ICPNT members

Name	**Position/Faculty**	**Area of expertise /contribution**
Domain/ Scientific Leads		
JoAnne Arcand, PhD	Associate Professor, Faculty of Health Sciences	Nutrition policy, clinical and community-based interventions, e/mHealth, mixed methodologies
Jennifer Abbass Dick, PhD	Assistant Professor, Faculty of Health Sciences	Breastfeeding, eHealth, implementation science, mixed methodologies
Mavra Ahmed, PhD	Adjunct Professor, Faculty of Health Sciences, Research Associate, Joannah and Brian Lawson Centre for Child Nutrition and Department of Nutritional Sciences, University of Toronto, Course Director, School of Kinesiology and Health Science, York University	School-based interventions, e/mHealth, food environments, food and nutrition policy, nutritional epidemiology

Research Experts		
Janette Hughes, PhD	Professor, CRC Technology and Pedagogy, Faculty of Education	Education, technology, pedagogy, digital literacies, AI in education
Bill Kapralos, PhD	Associate Professor, Faculty of Business and Information Technology	eHealth, technology, immersive technologies, AI
Mary L'Abbé, PhD	Adjunct Professor, Faculty of Health Sciences, Professor Emeritus, University of Toronto	Nutrition policy and interventions for chronic disease prevention, nutrition regulations
Janet McCabe	Associate Professor, Faculty of Health Sciences	Intellectual disabilities, children
Winnie Sun, PhD	Associate Professor, Faculty of Health Sciences	Qualitative methods, older adults, cognitive disability, dementia care, AgeTech
Caroline Barakat	Associate Professor, Faculty of Health Sciences	Environmental and food safety

Dr. JoAnne Arcand (ICPNT Director) is an Associate Professor in the Faculty of Health Sciences at Ontario Tech and a Registered Dietitian with a cross-appointment with the Department of Nutritional Sciences at the University of Toronto (status only) (https://arcandnutritionlab.com/). Dr. Arcand has expertise This includes clinical and population-based interventions that ensure people have access to healthy foods, and that support behaviour change at multiple levels, from children to older adults, to patients living with chronic diseases, and to practitioners who support these groups within health, education and policy systems. Dr. Arcand is also involved in numerous knowledge translation activities, including the development of novel tools to translate scientific information to the public, patients and clinicians. She volunteers her time to several committees with Hypertension Canada, the Canadian Nutrition Society and the Dietitians of Canada. She is also actively involved in the international Science of Salt research group, affiliated with the World Hypertension League and WHO Collaborating Centre for Salt Reduction, and chairs a subcommittee that conducts regular systematic reviews of studies published on dietary sodium and health outcomes. She was awarded an Ontario Tech Research Excellence Chair in Food, Nutrition & Health, a National New Investigator Award from the Heart and Stroke Foundation of Canada, was the recipient of the 2017 CIHR-INMD-Canadian Nutrition Society New Investigator Prize, and was awarded a Notable Achievement Award from the World Hypertension League for her significant contributions to dietary sodium reduction. In the nine years since starting at Ontario Tech, Dr. Arcand has acquired $2.6 million in research funding as a PI and $5.1 million as Co-PI or Co-I; much of this is to fund projects strongly aligned with ICPNT's mission. Dr. Arcand's work has been

published in high-profile journals and presented to a variety of stakeholder groups, including clinicians, academics, the food industry and the government. Her outputs include 94 journal articles, 105 abstracts, 2 book chapters, 12 technical reports, and IP rights on 6 innovative eHealth tools (Google scholar h-index: 33; 4459 citations (Oct. 2024)).

Dr. Jennifer Abbass Dick is an Associate Professor in the Faculty of Health Sciences at Ontario Tech, a Registered Nurse and a Registered Lactation Consultant. Her research program involves designing, evaluating, and implementing innovative technology-enhanced interventions for new parents and their families that increase health outcomes, such as breastfeeding. She is dedicated to assisting and empowering parents to have a positive and healthy transition to parenthood. Dr. Abbass Dick and a team of professionals from Ontario Tech, Durham Region Health Department, and Lakeridge Health have created an Online Breastfeeding Course for Parents to standardize breastfeeding education across the Health Region, it has over 500 users monthly and has videos on You Tube created by her team imbedded in it, one of which had over 6.7 million views (April 2024). Dr. Abbass Dick founded the Canadian Breastfeeding Research Network, a national network of Canadian breastfeeding researchers focused on collaboration to achieve breastfeeding protection, promotion and support. Dr. Abbass Dick has secured over $140,000 in grant funding as a PI and has been a co-investigator on grants totalling almost $18 million (including one grant of $17 million). Dr. Abbass Dick has authored 25 publications and three dozen conference abstracts (Google Scholar h-index: 12; 755 citations (Oct. 2024)).

Dr. Caroline Barakat is an Associate Professor in the Faculty of Health Sciences at Ontario Tech and a health geographer specializing in environmental health. Her research centers on child and adolescent health, population health, environmental epidemiology, and health inequities. She has led major research initiatives, including the Hamilton Children Cohort Study on Air Quality and a national project in the UAE that collected data on medical diagnoses and environmental exposures from over 30,000 residents, including 6,000 adolescents. Dr. Barakat also served as a Co-Investigator for a Public Health Agency of Canada project that reviewed risk factors for neurological conditions. Her recent work examines exposures to toxins from personal care and cleaning products, the influence of environmental factors on adolescent physical activity, and cannabis use during adolescence. Dr. Barakat has secured over $4 million in research funding, with nearly $3 million as principal or co-investigator. She has been awarded 12 Tri-Council grants, including seven as principal investigator, and currently holds five ongoing Tri-Council grants, reflecting a strong and sustained research program in child and adolescent environmental health. With more than 60 publications, her work informs policy on environmental health issues, including air quality, food safety, and public health interventions (Google Scholar h-index: 14; 586 citations (Oct. 2024)).

Dr. Janette Hughes is a Professor and Canada Research Chair of Technology and Pedagogy in the Faculty of Education at Ontario Tech, and the inaugural Director of the Centre for Digital Innovations in Education (CDIE). Dr. Hughes specializes in the transformation of literacy practices through making and new digital media. Her research and teaching interests include critical making, critical digital literacies, digital making, adolescent literacies and identity, writing and digital media, new literacies and conceptualizations of learning, digital citizenship, and AI in education. Dr. Hughes is particularly interested in how critical making and digital media enable users to teach, learn, connect, collaborate, communicate critique, create, and promote social change. Her research in the field of digital literacies has been featured in numerous education journals and recognized nationally and internationally. She is the recipient of the Ontario Ministry of Research and Innovation's Early Researcher Award and the Ontario Research Fund—Research Excellence Award. Dr. Hughes has vast experience working with large budgets, research teams, and institutional/ community/ industry partners and collaboratively developing policies and procedures for large-scale research projects. Dr. Hughes has authored four books, 35 book chapters, 87 journal articles, and over 130 conference presentations (Google Scholar h-index: 30; 2966 citations (Oct. 2024)).

Dr. Bill Kapralos is an Associate Professor in the Faculty of Business and Information Technology at Ontario Tech, an Adjunct Professor in the Department of Engineering and Computer Science at York University (Toronto, Canada), and an Honourable Guest Professor at Shizuoka University (Hamamatsu, Japan). He is also the Technical Lead of the Collaborative Human Immersive Interaction Laboratory (CHISIL), a collaborative laboratory examining the application of virtual reality, augmented reality and mixed realities in clinical, medical, and patient education in the perioperative period. His current research interests include immersive technologies, serious gaming, multi-modal virtual environments/simulation/reality, the perception of auditory events, and 3D (spatial) sound generation. He currently leads the serious gaming theme within the SSHRC Interactive and Multi-Modal Experience Research Syndicate (IMMERSe) initiative. Dr. Kapralos is a past recipient of an IBM Centres for Advanced Studies Faculty Award, a Google Faculty Research Award (co-recipient), an NSERC and Japan Society for the Promotion of Science (JSPS) Fellowship to conduct research in Japan, an Australian Government 2018 Endeavour Executive Fellowship to conduct research in Australia, an Ontario Tech Research Excellence Award, and an Ontario Tech Research Excellence Chair. Dr. Kapralos has been awarded grants totalling over $830,000 in funding as a PI and $10 million as a co-investigator. Dr. Kapralos has edited 8 books, authored 76 journal publications, 19 book chapters, 183 conference/workshop proceedings, 77 abstracts, and presented 72 keynote and invited presentations (Google scholar h-index: 31; 4541 citations (Oct. 2024)).

Dr. Janet McCabe is an Associate Professor in the Faculty of Health Sciences at Ontario Tech. Dr. McCabe is a Registered Nurse whose work focuses on people with

intellectual and developmental disabilities (IDD) and their supporters (e.g. family, caregivers, and communities) to study health promotion, disease prevention, and the social determinants of health. In doing so, Dr. McCabe aims to positively impact the experiences and lives of people with IDD, their supports, and the education of health providers, both current and future. Using qualitative and mixed methods approaches rooted firmly in critical theory Dr. McCabe's work has recently focused on food security in the context of adults with IDD throughout COVID. Dr. McCabe also works closely with both Special Olympics Canada and Special Olympics Ontario – where she volunteers as a Clinical Director for Health Athletes – Health Promotion programming – supporting heathy choices for athletes (including healthy eating). Dr. McCabe has been awarded grants totalling over $180,000 in funding as a PI or co-PI and $5.7 million as a co-investigator. Dr. McCabe has authored 13 peer-reviewed journal articles, two book chapters, one technical report, two research reports, and presented at several meetings and symposia.

Dr. Winnie Sun is an Associate Professor of nursing in the Faculty of Health Sciences at Ontario Tech, and she holds a research appointment as the co-research director for the Regional Centre of Dementia Care and Recovery in Ontario Shores Centre for Mental Health Sciences. Dr. Sun is the Director and co-lead for the Advancement for Dementia Care Centre (ADCC) and a research collaborator at the Aging Gracefully across Environments using Technology to Support Wellness, Engagement, and Long Life, Network Centres of Excellence (AGE-WELL-NCE). She is currently leading the development of virtual reality reminiscence therapy for persons with dementia funded by the Centre for Aging and Brain Health Innovation (CABHI). Dr. Sun possesses a strong publication record, with 76 refereed journal articles, 106 conference presentations, and book chapters in community health, mental health, gerontechnology, geriatric and dementia care, as well as an active and diversified track record of conducting interdisciplinary research in gerontology, including Tri-Council, national and provincial funding from CIHR, SSHRC, Canadian Frailty Network, Ontario Trillium Foundation, CABHI SPARK-ON program, WeRPN (Registered Practical Nurses' Association of Ontario) and Ministry of Colleges and Universities Micro-credentials Challenge Fund. Dr. Sun was also recently awarded an Ontario Tech Research Excellence Chair in Healthy Aging and Dementia Care, an Alzheimer's Society of Durham Region Ambassador Award, and was nominated for the Nursing Research Excellence Award.

Dr. Mavra Ahmed is an Adjunct Professor with the Faculty of Health Sciences at Ontario Tech and a Research Associate in the Department of Nutritional Sciences and Joannah and Brian Lawson Centre for Child Nutrition, University of Toronto. Dr. Ahmed has experience in nutrition and food policy and clinical nutrition with strong expertise in research methods and extensive collaborations with both private and public partners. Dr. Ahmed obtained her PhD, specializing in the characterization of dietary intakes of the Canadian Armed Forces and the evaluation of novel technologies for assessing diets. She also holds a CIHR Fellowship in the Strategic

Training Program in Public Health Policy, a CIHR Fellowship in Artificial Intelligence for Public Health from the Dalla Lana School of Public Health and a Visiting International Research Fellowship from College of Nursing and Health Sciences, Flinders University, Australia. Her current research focuses on driving equity-focused policy shifts by determining the relationships between social determinants of health, dietary patterns/intakes and nutrition-related behaviours and knowledge to improve the health of vulnerable populations. She is fronting the Feeding Kids, Nourishing Minds school nutrition research initiative that aims to provide a comprehensive overview of school food programs in Canada and identify best practices in relation to the design, delivery, and measurement of school food programs. Dr. Ahmed is also focused on exploring the use of machine learning and AI in evaluating the Canadian food environment, specifically the impact of the nutritional value of foods on health outcomes and in relation to help guide Canadian nutrition policy development, implementation and evaluation and in order to help Canadian consumers eat healthy and manage chronic diseases. Dr. Ahmed has published 51 journal articles, 8 technical reports, 93 abstracts and has IP rights on 2 e/mHealth products (Google Scholar h-index: 15; 803 citations (Oct. 2024)).

Dr. Mary L'Abbé is an Adjunct Professor with the Faculty of Health Sciences at Ontario Tech and a Professor Emeritus and former Chair in the Department of Nutritional Sciences at the University of Toronto (https://labbelab.utoronto.ca/). Dr. L'Abbé is also the Director of the WHO Collaborating Centre on Nutrition Policy for Non-communicable Disease Prevention. Her research examines the nutritional quality of the food supply, nutrient profiling methods, front-of-pack labelling, dietary intake patterns and costs, and consumer research related to obesity and NCD. She has served on numerous expert committees for the WHO, PAHO, Dietary Reference Intakes, Health Canada and others. Professor L'Abbé is a member of the Order of Canada and Fellow of the Canadian Nutrition Society, the American Society of Nutrition and the International Union of Nutritional Sciences. She has received numerous national and international awards for her research and nutrition leadership. Since 2011, Dr. L'Abbé has received over $6.5 million in funding as a PI and helped secure over $11 million as a co-investigator. Dr. L'Abbé has authored 297 journal publications, >65 reports for government or WHO bodies, 16 book chapters, 25 monographs, and >150 abstracts (Web of Science h-index: 45 (May 2024)).

Box 1. ICPNT Member's External Partner and Relationship Organizations	
Local (Ontario)	
49 Ontario school boards	Simcoe Muskoka District Health
Alzheimer's Society of Durham Region (ASDR)	St. Michael's Hospital
Centre for Aging and Brain Health Innovation (CABHI)	Sunnybrook Health Sciences Centre
Durham Region Health Department	The Coalition of Healthy School foods
Durham Region Long-Term Care Division	Toronto Foundation for Student Success
Lakehead University	Toronto Metropolitan University
Lakeridge Health	Toronto Public Health
Mount Sinai Hopsital	University of Guelph
Ontario Dietitians in Public Health	University of Toronto
Ontario Physical and Health Education Association	University of Waterloo
Ontario Shores Centre for Mental Health Sciences	WeRPN (Registered Practical Nurses' Association of Ontario)
Oshawa Senior Community Centre (OSCC)	Western University
Queen's University	York University
National (Canada)	
AGE-WELL	McGill University
Canadian Frailty Network	Memorial University
Canadian Medication Appropriateness and Deprescribing Network	Neurofit
Canadian Nutrition Society	Novo Nordisk Centre for Population Health
Canadian Sport Institute - Pacific	RxFood Inc.
Dietitians of Canada	Senior Care Network
Health Canada	SenseTech Solution Inc.
Heart & Stroke Foundation	University of Calgary
HeartLife Inc.	University of Ottawa
Hypertension Canada	University of Saskatchewan
International Development Research Centre	University of Victoria
Manulife	
International	
CODEX	University of Amsterdam, Netherlands
Flinders University, Australia	University of Auckland, New Zealand
Food and Agricultural Organization	University of Dundee, Scotland
George Institute for Global Health, Australia	University of Leeds, UK
German Sport University Cologne, Germany	University of Newcastle, Australia
INCIENZA, Costa Rica	University of Paris-Descartes, France
International Network for Food and Obesity / Non-communicable Diseases Research Monitoring and Action Support (INFORMAS)	University of Sao Paulo, Brazil
International Society for Behavioural Nutrition and Physical Activity	University of South Australia, Australia
Karlsruhe Institute of Technology, Germany	World Health Organization
Pan-American Health Organization	

8. Resource Requirements

8.1. Physical Requirements

8.1.1. Explain the type, size and location of space desired, and how the desired space is appropriate to the proposed research entity's needs. Specific space commitments must be secured from the office of the Provost. Mention all special equipment or other requirements that have space implications.

At start-up, the ICPNT members will use their existing research spaces (Box 2), which may require expansion in the future as the Centre grows. The new home to the Faculty of Health Sciences, Shawenjigewining Hall, will provide additional space for the ICPNT research activities, such as a meeting place for collaborations, and a safe space for students, faculty, partners, and staff. There are no new lab requirements for the ICPNT at the present time.

Box 2. Description of available infrastructure/ research spaces

Dr. Arcand	Lab that includes 4 offices (2x desks each) for trainees in U5 building
Dr. Hughes	STEAM 3D Maker Lab (virtual tour - https://janettehughes.ca/lab/)
Dr. Sun	Geriatric Dementia Unit; Research Office (experiential student placement at Ontario Shores Centre for Mental Health Sciences)
Dr. Kapralos	1 lab (GAMER Lab) for trainees in SIRC building

8.1.2. Provide a complete list of all required resources and equipment including computers, phones, and copiers. Specify what internal resources (i.e. library, audio-visual) will be used and to what extent.

The ICPNT and its members will require the use of basic office lab equipment (e.g., computers, phones, desks, monitors, copiers) and software for data collection (e.g., Qualtrics, REDCap), analysis (e.g., R Studio, SPSS, NVivo) and writing (e.g., Endnote). Many of these resources are available internally. Any resources requirements above and beyond what is internally available will be purchased with the ICPNT faculty member research funds (e.g., wearables or mobile devices for intervention delivery or data collection) . As new research is planned, more specialized resources may be required and ICPNT faculty members will apply for funds to cover these resource costs. The ICPNT will utilize library resources to access journal articles, books, and periodicals; however, ICPNT faculty members have Research Librarians on their teams to assist with research projects that utilize scoping and systematic review methodologies.

8.2. Staffing Requirements and Governance Structure

8.2.1. Explain any requirements for administrative, and/or technical personnel support from the University. List the following for each support staff member:

- Proposed Employer (University or Entity)

- Role or Duties
- Source of Compensation

Administrative support will be provided by a part-time Coordinator, hired as an employee of the ICPNT. They will be responsible for assisting the Director with administrative and organizational tasks. Compensation for the Coordinator will derive from ICPNT member grants. In Year 1, additional funds are requested as part of the Start-up funds (Section 8.3.2) to support the development of ICPNT processes and online presence.

Graduate students and postdoctoral fellows will be recruited each year as part of the ICPNT training activities. They participate in research and dissemination activities, seminar planning, and mentor undergraduate students. These students will be funded through Teaching Assistantships or partially funded Teaching Assistantships that are funded by Ontario Tech; and/or Graduate Research Assistantships that are funded by the ICPNT faculty members through their operating grants; and/or by external scholarships such as Ontario Graduate Scholarships, or those from CIHR, NSERC or SSHRC. The ICPNT will aim to have at least one postdoctoral fellow each year. The postdoctoral fellow will conduct advanced research under the supervision of the ICPNT faculty members, contributing to published work, grant applications, and student training. Postdoctoral fellows will be funded through the ICPNT faculty member's operating grants and/or competitive scholarship programs from agencies such as the Banting Postdoctoral Fellowship program, CIHR, SSHRC, NSERC, or the Heart & Stroke Foundation.

Future expansion the number of staff and trainees will be reevaluated as research projects are initiated and contingent upon securing funding to support this growth.

8.2.2. For personnel within the research entity who are employees of external institutions or corporations and not employees of Ontario Tech, provide copies of agreements outlining the obligations of both Ontario Tech and the external institution or corporation.

There are currently no ongoing agreements with personnel who are employees of external institutions or corporations. Such agreements will be prepared on an ongoing basis.

8.2.3. Describe the governance structure for the research entity. Indicate the structure, composition and decision-making processes that will facilitate the operations and research activities of the research entity.

The organizational structure of the ICPNT is summarized in Figure 2.

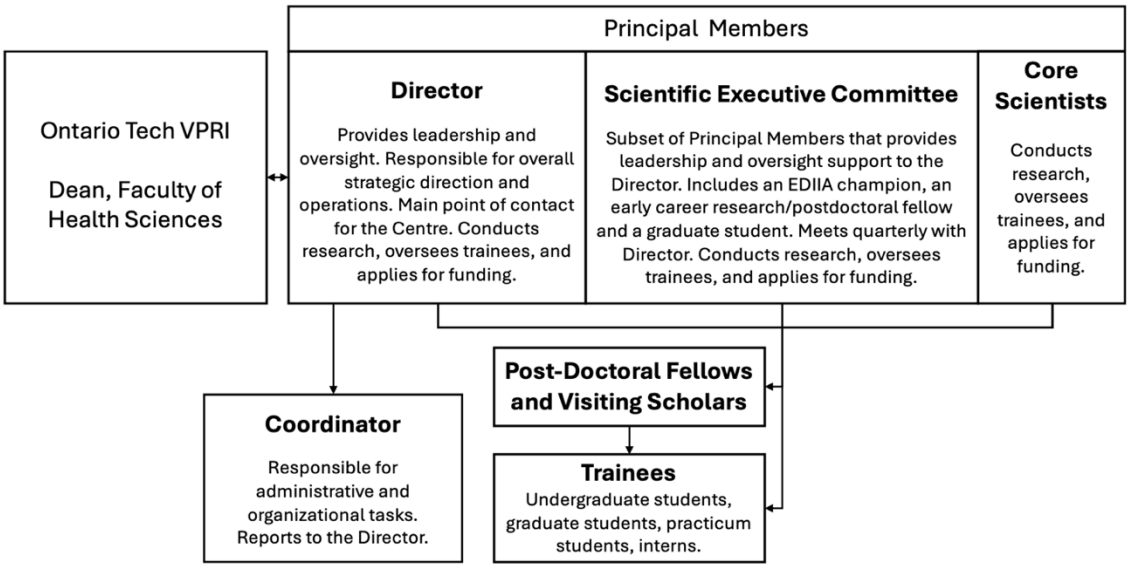


Figure 2. Organizational structure of the ICPNT

Briefly, ICPNT leadership and oversight will be the responsibility of the Director and Scientific Executive Committee. ICPNT leadership will be supported by a Coordinator, and activities will be informed by trainees of all levels.

The **Director** will be the main point of contact for the ICPNT and will report to the Dean of the Faculty of Health Sciences and the Vice President of Research and Innovation. The Director will oversee most activities in the ICPNT and be responsible for overall strategic direction and operations of the Centre, including managing budgets, communications with members and stakeholders, organizing outreach activities, coordinating meetings, supporting members, trainees, and staff, and representing the ICPNT. They will Chair the Scientific Executive Committee and work with the Coordinator to ensure the implementation of the ICPNT activities and initiatives, including the direction of the ICPNT training resources, activities and programming. The Director will ensure adherence to institutional policies related to the Centre and will lead any funding applications to directly support the activities of the Centre.

The **Scientific Executive Committee** will be comprised of three ICPNT core scientists (faculty members) who will assist the Director in making high-level decisions about research priorities, funding, and strategic planning. The Scientific Executive Committee will also appoint an EDIIA champion from the ICPNT members to ensure that EDIIA-related issues are consistently integrated into the decision-making process. The committee will also include one early career researcher/postdoctoral fellow and one graduate student representative. The committee will work with the Director to prioritize and facilitate the organization of ICPNT events and learning opportunities, such as workshops and seminars, aimed at enhancing the professional development of trainees. The Scientific Executive Committee will meet quarterly, or more often as needed, and decisions will be

made by consensus to ensure that all voices are heard and considered. All ICPNT faculty members will be responsible for conducting research, overseeing trainees, and securing funding through competitive grant applications. Clear accountability measures will be in place ensuring the alignment of research initiatives with the committee's strategic priorities, including regular progress reports and assessments of EDIIA integration.

A **Coordinator** will take on the responsibility of administrative and organizational tasks within ICPNT, reporting directly to the Director. Tasks will include scheduling meetings, coordinating communications and social media, implementing outreach activities, engaging with external stakeholders, planning and coordination of workshops/seminars to ensure the successful and smooth launch and sustainability of the Centre. The Coordinator will also support the preparation of annual reports as well as grant submissions and funding applications directly related to ICPNT operations.

Postdoctoral fellows, visiting scholars, and trainees will participate in ICPNT activities as part of the ICPNT members' labs and in coordinated workshops/seminars, collaborative research and in social events organized through the ICPNT. They will directly inform the ICPNT activities that support their scientific training, networking and professional development

8.3. Budget and Financial Requirements

8.3.1. Prepare a detailed budget projection for the first five years of operation, including all sources of income, expected expenses/disbursements. (See Excel Template)

A five-year ICPNT budget projection is provided in the Appendix. Funding for all ICPNT research activities will come from external grants. The initial ICPNT operating costs will be funded by smaller unrestricted grants held by Dr. Arcand, with a request for start-up funds from Ontario Tech to cover the additional hours needed to launch the ICPNT. Research and operating estimates may increase as Members successfully obtain new and larger grants as they work together to support the ICPNT mandate. Additionally, it is expected that most trainees and postdoctoral fellows will obtain provincial and national scholarships, based on a successful track record from our members' trainees and as high calibre talent is recruited to Ontario Tech through the ICPNT. The Faculty of Health Sciences and Dr. Arcand have been working with Advancement at Ontario Tech to secure a large donation for a Research Chair and/or support for the ICPNT. If successful, these will be a source of funds to enhance the ICPNT activities, such as providing trainees with travel awards or scholarships. These funds will also be used to provide seed funding for the independent research ideas of postdoctoral fellows, preparing and supporting their success for future faculty positions.

8.3.2. Start-up funding may be available for the establishment of research entities. Justify your request for start-up funding.

Start-up funding is requested for a total of $25,000. Start-up funds will cover expenses that cannot be readily mobilized in Year 1 from existing grants, for the purpose of ensuring a successful launch of the ICPNT. Having start-up funds will expedite the work required to launch the ICPNT. Initiating the ICPNT in a timely manner is considered critical to support Ontario Tech's recently launched *"Tech with a Conscience"* fundraising campaign, which includes strategic fundraising activities that align with the ICPNT mandate (e.g., a Research Chair in Nutrition Security). Start-up funds are considered reasonable in this circumstance since there is not yet a philanthropic or industry partner financially supporting the ICPNT, and no member currently holds substantive programmatic research funds through the Canada Research Chair program, CIHR Applied Public Health Research program, or through a philanthropic donation.

The requested start-up funds will cover the following:

- *Establishing a Presence for the ICPNT:* A logo, website, social media accounts and other promotions (e.g., conference session proposals, outreach to partners and stakeholders) will be developed to give the ICPNT a digital presence, promote awareness among partners, and to expand the reach and dissemination of the ICPNT research outputs. A ICPNT website will become a source of information for interested collaborators, trainees, and partners to learn more about the ICPNT's mission and research mandate – supporting recruitment and partnership development. We will work with the website development company Gray Cyan, who developed Dr. Arcand's lab website, and with students in the Faculty of Business and IT on logo development (Requested for Year 1: $5,000).

- *Coordinator*: A part-time Coordinator will be integral to the successful launch of the ICPNT, especially during the first year to ensure a smooth and successful launch. In Year 1, they will coordinate and support activities to establish a digital and institutional presence in Year 1 (e.g., develop website content); in addition to the roles and responsibilities described in Section 8.2.3. In Years 1 and 2, funding for the ICPNT Coordinator will be mobilized from Dr. Arcand's Research Excellence Chair (REC) as this provides funding for research leadership (Award value is $15,000 annually). It is anticipated that the efforts to secure funds for ICPNT in Y1 will result in secured funds for Year 2 to Year 5, and beyond (Requested for Year 1: $10,000).

- *ICPNT Postdoctoral fellow stipend*. Funds are requested in Year 1 for the partial stipend of a postdoctoral fellow, who will be provided with dedicated time to conduct work to the launch the ICPNT. The postdoctoral fellow will work with the Director to form the governance structures and with the Coordinator to establish the academic activities by seeking input from trainees from all disciplines. They will also work with the Director on applications to funding opportunities to support

ICPNT operations, including working with Advancement to secure donations. This is a unique opportunity for a postdoctoral to establish research leadership and grant writing skills (Requested for Year 1: $10,000, where a postdoctoral fellow is typically paid $50,000 in Dr. Arcand's lab).

8.3.3. Provide a plan for the long-term financial sustainability, including external funding, of the Research Entity.

Securing external funding will ensure a steady flow of resources to support the ICPNT's research activities (Section 4.3). Long term success and sustainability of funding is expected given past successes in securing funds from a variety of sources, as summarized in Section 4.3 and Section 7. Regarding longer-term funding for the ICPNT, the Faculty of Health Sciences and Dr. Arcand is working closely with Advancement to secure donations for a Research Chair funding and/or funding for the ICPNT. These efforts could provide opportunities for individuals or organizations to become named sponsors of the Centre, and the funds raised can be used to support the operations of the ICPNT or to establish a Research Chair position linked to the Centre. The ICPNT will also focus on pursuing a wide range of funding opportunities that can support ICPNT operations and research, including tri-agency councils and those that value an interdisciplinary approach (e.g., New Frontiers in Research Fund, Canadian Foundation for Innovation). Each ICPNT faculty member will act as the lead within their respective research areas while leveraging the collective expertise of all members to strengthen their proposals through internal peer review. The funds will be used to support research pursuits, graduate students, research assistants, postdoctoral fellows, and dissemination activities (e.g., conferences, journal publications, seminars). ICPNT members will apply for funding opportunities to support the management and infrastructure of the ICPNT as needs arise going forward (e.g., external research grants will have funds allocated to support the ICPNT operations). In addition, funding from the Canadian Foundation for Innovation (CFI) Infrastructure Operating Fund helps cover a portion of the operating and maintenance costs of CFI-funded research infrastructure. All students working with the ICPNT will additionally be encouraged to apply for scholarships with mentorship to develop their applications. The ICPNT members will also actively fundraise to support ICPNT work. Each year, the budgetary needs of the ICPNT will be re-evaluated to ensure the efficient use of resources.

The ICPNT does not require the addition of new faculty for its successful launch. However, continued growth and sustainability of the ICPNT in the long-term would benefit from the strategic recruitment of nutrition-focused faculty members (new and to replace recent retirements), especially those whose research aligns with the ICPNT research mandate (e.g., nutrition and AI) and/or that compliments existing disciplines or expertise within the Faculty of Health Sciences (e.g., nutrition and aging, nutrition in persons with disabilities). An ideal strategy would be to incorporate an Associate Professor with an established research program, providing instantaneous benefits to the ICPNT, and an Assistant Professor who would promote sustained development.

9. Intellectual Property and Commercialization

9.1. Describe any proposed arrangements with members (including members from external institutions) relating to the ownership and/or commercialization of intellectual property created through work undertaken at the Research Entity

The ICPNT will use the intellectual property policy of Ontario Tech. In general, the policy states that all academic personnel own the intellectual property they create in the course of their teaching, research and other scholarly activities. The intellectual property is jointly owned by the faculty member and their students and postdoctoral fellows. Academic personnel will retain the right to publish their work and use the results in subsequent research. Collaboration agreements with external institutions, agencies, or companies, will detail intellectual property rights in advance and in writing based on the contributions made. Ontario Tech will be included in the agreements if University resources or funds are involved. All personnel participating in research that requires a collaboration agreement will be made aware of the stipulations. Any changes or waivers will be made with informed consent. The Ontario Tech *policy on the commercialization of intellectual property* will be followed if the creator(s) intend to commercialize. An IP officer at Ontario Tech will be consulted with any queries that arise and to ensure collaboration agreements are sound.

9.2. Describe proposed arrangements for the conduct of private sector contract research.

Any arrangements for the conduct of private sector contract research will be consistent with Ontario Tech policies and procedures. The ICPNT faculty members will draw on their wealth of prior experience collaborating with private sector partners (e.g., Neurofit, Manulife, etc.) and will leverage this experience for partnerships in the future.

10. Summary

Establishing a ICPNT at Ontario Tech presents a unique opportunity to tackle complex and multifaceted nutrition challenges facing the world today. The ICPNT will operate as a self-sustaining research entity, leveraging interdisciplinary collaborations from the faculties of Health Sciences, Business and Information Technology, and Education and meaningful partnerships with community, industry, government, and NGOs. The ICPNT faculty members have extensive track records for securing funding, disseminating and translating research findings, supervising and mentoring trainees, and are considered leaders in their respective fields. With collective efforts towards a unified vision, we are confident that the ICPNT is well-positioned to emerge as a recognized leader in interdisciplinary and technology-driven nutrition research and, through this, will enhance the research reputation and visibility of Ontario Tech. The ICPNT will also undoubtedly contribute to advancing Ontario Tech's strategic research plan with a vision and research mandate that aligns with the University's priorities and values.

11. Appendices

A. Member CVs
B. Budget Projection for the first five years of operation

12. References

1. Singh M. Role of micronutrients for physical growth and mental development. The Indian journal of pediatrics 2004;71:59-62.
2. World Health Organization, Food and Agriculture Organization of the United Nations. Rome Declaration on Nutrition. Rome, Italy; 2014.
3. World Health Organization. Diet, nutrition and the prevention of chronic diseases. Geneva; 2003.
4. Arora S, Santiago JA, Bernstein M, Potashkin JA. Diet and lifestyle impact the development and progression of Alzheimer's dementia. Frontiers in Nutrition 2023;10:1213223.
5. World Health Organization. Healthy Diet 2020 [Available from: https://www.who.int/news-room/fact-sheets/detail/healthy-diet.
6. United Nations. The Sustainable Development Goals Report 2024. 2024.
7. Global Burden of Disease 2017 Diet Collaborators. Health effects of dietary risks in 195 countries, 1990-2017: a systematic analysis for the Global Burden of Disease Study 2017. The Lancet 2019;393(10184):1958-72.
8. World Health Organization. Obesity and overweight 2024 [Available from: https://www.who.int/news-room/fact-sheets/detail/obesity-and-overweight.
9. Jessri M, Hennessey D, Bader Eddeen A, Bennett C, Sanmartin C, Manuel D. Mortality and Life Expectancy Lost in Canada Attributable to Dietary Patterns: Evidence From Canadian National Nutrition Survey Linked to Routinely Collected Health Administrative Databases. American Journal of Epidemiology 2023;192(3):377-96.
10. Lieffers JR, Ekwaru JP, Ohinmaa A, Veugelers PJ. The economic burden of not meeting food recommendations in Canada: The cost of doing nothing. PLoS One 2018;13(4):e0196333.
11. Story M, Kaphingst KM, Robinson-O'Brien R, Glanz K. Creating healthy food and eating environments: policy and environmental approaches. Annu Rev Public Health 2008;29:253-72.
12. Thorndike AN, Gardner CD, Kendrick KB, et al. Strengthening US food policies and programs to promote equity in nutrition security: a policy statement from the American Heart Association. Circulation 2022;145(24):e1077-e93.
13. Drewnowski A, Finley J, Hess JM, Ingram J, Miller G, Peters C. Toward healthy diets from sustainable food systems. Current Developments in Nutrition 2020;4(6):nzaa083.
14. Salinari A, Machì M, Armas Diaz Y, et al. The Application of Digital Technologies and Artificial Intelligence in Healthcare: An Overview on Nutrition Assessment. Diseases 2023;11(3):97.

15. Bond A, Mccay K, Lal S. Artificial intelligence & clinical nutrition: What the future might have in store. Clinical nutrition ESPEN 2023.
16. Limketkai BN, Mauldin K, Manitius N, Jalilian L, Salonen BR. The age of artificial intelligence: use of digital technology in clinical nutrition. Current surgery reports 2021;9(7):20.
17. Paramastri R, Pratama SA, Ho DKN, et al. Use of mobile applications to improve nutrition behaviour: a systematic review. Computer methods and programs in biomedicine 2020;192:105459.
18. Sosa-Holwerda A, Park O-H, Albracht-Schulte K, Niraula S, Thompson L, Oldewage-Theron W. The role of artificial intelligence in nutrition research: a scoping review. Nutrients 2024;16(13):2066.
19. United Nations. Decade of Action on Nutrition [Available from: https://www.un.org/nutrition/.
20. World Health Organization. Ambition and Action in Nutrition 2016-2025. 2017.
21. Government of Canada. Health Canada's healthy eating strategy [updated 2024-10-08. Available from: https://www.canada.ca/en/health-canada/services/food-nutrition/healthy-eating-strategy.html.
22. United Nations. Transforming our World: The 2030 Agenda for Sustainable Development. 2015.
23. World Health Organization. Global action plan for the prevention and control of noncommunicable diseases 2013-2020. 2013.
24. Food and Agriculture Organization of the United Nations. Strategic Framework 2022-31. 2021.
25. Pan American Health Organization. Sustainable Health Agenda for the Americas 2018-2030: A Call to Action for Health and Well-Being in the Region. 2017.
26. Pan American Health Organization. This Strategy and Plan of Action on Health Promotion within the Context of the Sustainable Development Goals 2019-2030. 2022.
27. Heart and Stroke Foundation of Canada, Canadian Institutes of Health Research. Improving Canada's Eating Environment -Increasing Food and Nutrition Research, Monitoring and Evaluation: A Canadian Health Organization Call to Action. 2016.
28. Dalton A, Wolff K, Bekker B. Multidisciplinary research as a complex system. International Journal of Qualitative Methods 2021;20:16094069211038400.
29. Keller HH. Improving food intake in persons living with dementia. Annals of the New York Academy of Sciences 2016;1367(1):3-11.
30. Canada Go. Best practices in equity, diversity and inclusion in research practice and design 2023 [Available from: https://www.sshrc-crsh.gc.ca/funding-financement/nfrf-fnfr/edi-eng.aspx.
31. Canada H. Women and Gender Equality Canada 2023 [Available from: https://women-gender-equality.canada.ca/en.html.
32. Phipps DJ, Pepler DJ, Craig W, Cummings J, Cardinal S. The Co-produced Pathway to Impact Describes Knowledge Mobilization Processes. Journal of Community Engagement and Scholarship 2016.
33. Henley MM. Women's success in academic science: Challenges to breaking through the ivory ceiling. Sociology Compass 2015;9(8):668-80.

34. Assessment DoR. What is DORA? [Available from: https://sfdora.org/.
35. Lavis J, Ross S, McLeod C, Gildiner A. Measuring the impact of health research. J Health Serv Res Policy 2003;8(3):165-70.
36. Lavis JN, Robertson D, Woodside JM, McLeod CB, Abelson J. How can research organizations more effectively transfer research knowledge to decision makers? The milbank quarterly 2003;81(2):221-48.
37. World Health Organization. WHO/UNICEF How to build an infodemic insights report in 6 steps. 2023.

Appendix

A) Budget for ICPNT operations

CENTRE OPERATIONAL BUDGET

Items		Year 1	Year 2	Year 3	Year 4	Year 5	Total	Justification
1. Operatonal Budget of Centre								
1.1 Labour Costs - Staff for Centre								
	Research Centre Coodinator	$ 17,072	$ 14,427	$ 15,008	$ 15,308	$ 15,615	$ 77,430	0.1 FTE in Y1 and Y2 secured. Y2-Y5 0.2 FTE with funds to be secured or mobilized from operating grants. Y1 includes an additional $10000 resquested as part of start-up funds in Y1 to support timely launch of the CINRI and its presence (proposal Section 8). Includes a 2% annual COLA
	Postdoctoral fellow	$ 10,000						Requested as start-up funds. Support launch of the CINRI.
	Benefits (9%)	$ 1,536	$ 1,298	$ 1,351	$ 1,378	$ 1,405	$ 6,969	Benefits applied to the Coordinator only
SUB-TOTAL-Labour (Staff)		**$ 28,608**	**$ 15,725**	**$ 16,359**	**$ 16,686**	**$ 17,020**	**$ 84,399**	
1.2 Labour Costs - Centre Director								
	Teaching Release (Director) - Faculty funded	$ 8,187	$ 8,351	$ 8,518	$ 8,688	$ 8,862	$ 42,605	1 course/year. Y1 rate based on the 2024-25 CA. Includes a 2% annual COLA
	Benefits (9%)	$ 737	$ 752	$ 767	$ 782	$ 798	$ 3,834	
SUB-TOTAL-Labour (Director)		**$ 8,924**	**$ 9,102**	**$ 9,284**	**$ 9,470**	**$ 9,659**	**$ 46,440**	
1.3 Research Entity Operating Costs								
	Office Supplies and Services	$ 500	$ 500	$ 500	$ 500	$ 500	$ 2,500	Miscellaneous office supplies and supplies needed for workshop activitires
	Graduate student scholarships & travel awards			$ 20,000	$ 20,000	$ 20,000	$ 60,000	
	Postdoctoral fellow/Early Career Researcher grants			$ 10,000	$ 10,000	$ 10,000	$ 30,000	
SUB-TOTAL-Research Entity Operating Costs		**$ 500**	**$ 500**	**$ 30,500**	**$ 30,500**	**$ 30,500**	**$ 92,500**	
2. Research Networking								
	Seminars and Workshops	$ 300	$ 600	$ 750	$ 750	$ 750	$ 3,150	Includes seminars/workshops (refreshments); honouriums for external speakers
SUB-TOTAL-Research Networking		**$ 300**	**$ 600**	**$ 750**	**$ 750**	**$ 750**	**$ 3,150**	
3. Communications								
	Website, Logo development	$ 5,000	$ 300	$ 300	$ 300	$ 300	$ 6,200	Y1 requested as part of start-up funds. Justification in the proposal Section 8.
SUB-TOTAL-Communications		**$ 5,000**	**$ 300**	**$ 300**	**$ 300**	**$ 300**	**$ 6,200**	
4. Knowledge Transfer and Dissemination								
	Publication Costs - Reports		$ 1,000	$ 1,000	$ 1,000	$ 1,000	$ 4,000	Annual reports, knowledge translation activities of the Centre
SUB-TOTAL- Knowledge Transfer and Dissemination		**$ -**	**$ 1,000**	**$ 1,000**	**$ 1,000**	**$ 1,000**	**$ 4,000**	
TOTAL OPERATIONAL BUDGET		**$ 43,332**	**$ 26,228**	**$ 57,193**	**$ 57,706**	**$ 58,229**	**$ 236,689**	
REVENUE								
	External Funding - Secured from Director	$ 9,500	$ 9,500	$ -	$ -	$ -	$ 19,000	Funded by the Dr. Arcand's Research Excellence Chair and other grants in Y1 and Y2
	External Funding - Unsecured Donations/grants	$ -	$ 10,000	$ 50,000	$ 50,000	$ 50,000	$ 160,000	A portion of future grants will be allocated to the ICPNT
	Start-up funds requested from VPRI	$ 25,000	$ -	$ -	$ -	$ -	$ 25,000	Unsecured
	FHSc Contribution - Teaching Release (Director)	$ 8,924	$ 9,102	$ 9,284	$ 9,470	$ 9,659	$ 46,440	Secured
TOTAL REVENUE		**$ 43,424**	**$ 28,602**	**$ 59,284**	**$ 59,470**	**$ 59,659**	**$ 250,440**	
TOTAL OPERATIONAL BUDGET LESS REVENUE		**$ 92**	**$ 2,375**	**$ 2,091**	**$ 1,764**	**$ 1,430**	**$ 13,751**	

Appendix

B) Budget for research activities conducted under the ICPNT

CENTRE RESEARCH BUDGET

		Year 1	Year 2	Year 3	Year 4	Year 5	Total	
Labour Costs - Research Staff								**Comments**
	*Masters Students**	$ 48,000	$ 48,000	$ 48,000	$ 48,000	$ 48,000	$ 240,000	GRA for 3 MHSc students, Y1- Y3 secured
	*PhD Students**	$ 54,000	$ 54,000	$ 54,000	$ 54,000	$ 54,000	$ 270,000	GRA for 2 PhD students, Y1 - Y3 secruted
	*Post-Doctoral Fellow**	$ 55,000	$ 55,000	$ 55,000	$ 55,000	$ 55,000	$ 275,000	GRA for 1 PDF, Year 1- 3 secured
	Research Assistants	$ 93,600	$ 93,600	$ 93,600	$ 93,600	$ 93,600	$ 468,000	Graduate student hires, estimated 10/year
	Research Associates	$ 254,800	$ 259,896	$ 265,094	$ 270,396	$ 275,804	$ 1,325,989	e.g., Dietitians, IT specialists, Analysts, Teachers, 2% annual COLA
	Benefits (9%)	$ 31,356	$ 31,815	$ 32,282	$ 32,760	$ 33,246	$ 161,459	
SUBTOTAL Trainees		**$ 536,756**	**$ 542,311**	**$ 547,976**	**$ 553,755**	**$ 559,650**	**$ 2,740,448**	
Research Operating Costs								
	Scientist Travel/Conferences	$ 10,000	$ 10,000	$ 12,000	$ 12,000	$ 15,000	$ 59,000	KT to scientific conferences, stakeholder meetings
	Publications	$ 8,000	$ 8,000	$ 12,000	$ 12,000	$ 16,000	$ 56,000	Estimates. Publication cost vary by journal and dicipline.
	Software	$ 5,000	$ 5,000	$ 5,000	$ 5,000	$ 5,000	$ 25,000	Qualtrics, Nvivo, Unity, ESHA Food Processor, Block screeners, etc.
	Equipment - computer equipment	$ 500	$ 3,800	$ 500	$ 3,800	$ 500	$ 9,100	Laptop docking stations 4@$1675 = $6700, other misc. computer/electronic research supplies ($500/year)
	Equipment - tablets	$ -	$ 3,000	$ -	$ -	$ 3,000	$ 6,000	Classroom set of android tables (n=35 + cases)
	Contracts (tech)	$ 300,000	$ 300,000	$ 300,000	$ 300,000	$ 300,000	$ 1,500,000	Development of e&mHealth tools, AI integration
	Contracts (market research)	$ 90,000	$ 90,000	$ 90,000	$ 90,000	$ 90,000	$ 450,000	analysis
SUBTOTAL Research Operating		**$ 413,500**	**$ 419,800**	**$ 419,500**	**$ 422,800**	**$ 429,500**	**$ 2,105,100**	
TOTAL RESEARCH COSTS		**$ 950,256**	**$ 962,111**	**$ 967,476**	**$ 976,555**	**$ 989,150**	**$ 4,845,548**	
REVENUE RESEARCH								
	External Funding (Director) - Secured	**$ 351,238**	**$ 291,238**	**$ 291,238**	**$ -**	**$ -**	**$ 933,714**	**External funds currently held**
	External Funding (Director) - Unsecured	$ 50,000	$ 100,000	$ 200,000	$ 500,000	$ 500,000	$ 1,350,000	CIHR, SSHRC, Heart & Stroke, donations etc,
	External Funding (Members) - Secured	**$ 887,821**	**$ 377,000**	**$ 250,000**	**$ 150,000**	**$ 150,000**	**$ 1,814,821**	**External funds currently held**
	External Funding (Members) - Unsecured	$ 1,000	$ 400,000	$ 600,000	$ 700,000	$ 700,000	$ 2,401,000	CIHR, SSHRC, NSERC, Mitac, donations, etc.
	TOTAL REVENUE	**$ 1,290,059**	**$ 1,168,238**	**$ 1,341,238**	**$ 1,350,000**	**$ 1,350,000**	**$ 6,499,535**	
	TOTAL REVENUE LESS EXPENSES	**$ 339,803**	**$ 206,127**	**$ 373,762**	**$ 373,445**	**$ 360,850**	**$ 1,653,986**	

NOTE: All estimates are subject to change based on new grants, contracts and donations secured.

Academic Council Report

SESSION:		**ACTION REQUESTED:**	
Public	☒	**Decision**	☐
		Discussion/Direction	☐
		Information	☒

TO: **Academic Council**
DATE: **January 28, 2025**
PRESENTED BY: **Brad MacIsaac, Vice-President Administration**
SUBJECT: **Procurement Procedures**

ACADEMIC COUNCIL MANDATE:
In accordance with Article 1.3(b) of By-law No. 2, the Academic Council will be consulted on the establishment of Legal, Compliance and Governance Policies. Finance presents the attached Procurement Procedures/Policy update for review and comment.

OVERVIEW:
The Ontario government has recently passed new legislation to support its Building Ontario Business Initiative entitled, “Building Ontario Businesses Initiative Act” (“BOBIA”). This Act mandates public sector entities to give Ontario businesses preference when conducting procurement for goods and/or services under a specified threshold amount. Effective April 1, 2024, the university is required to give Ontario businesses preference when procuring goods and/or services (excluding construction or goods for resale) under CDN$121,200 excluding HST. Purchases of goods and/or services under CDN$121,000 from non-Ontario businesses is permitted with appropriate justification and documentation added to the purchase requisition.

We took this opportunity to make editorial amendments to the Procurement policy to reflect current policy formatting standards and sustainable procurement language. We have also made an additional note to section 8 to allow the use of Vendor of Record (VOR). These vendors have been vetted by the Ontario Education Collaborative Marketplace (OECM). If one of these vendors is selected no additional quotes are required for purchases between $10,000 and $121,200. Any purchases above $121,200 must be procured through an Open Procurement.

CONSULTATION:
The Policy Advisory Committee (PAC) reviewed and provided feedback on the procedure. There was University on-line Consultation during the month of December.

COMPLIANCE WITH POLICY/LEGISLATION:

The proposed procedures comply the governments legislation for BOBIA.

NEXT STEPS:
- Senior Leadership Team – Procedure Deliberation (February 2025)
- Audit and Finance Committee – Procedure Approval (February 13, 2025)

SUPPORTING REFERENCE MATERIALS:

- Appendix 1: Draft Policy – editorial amendments (for information purposes only as noted: DRAFT FOR REVIEW)
- Appendix 2: Draft Procedure (for AC Consultation)

Classification	LCG 1131
Framework Category	Legal, Compliance and Governance
Approving Authority	Board of Governors
Policy Owner	Vice-President, Administration
Approval Date	~~November 22, 2012~~DRAFT FOR REVIEW
Review Date	To be assigned
Last Updated	Editorial Amendments, May 30, 2022; February 18, 2020
Supersedes	Procurement of Goods and Services Policy (September 2010)

PROCUREMENT OF GOODS AND SERVICES POLICY -
[DRAFT EDITORIAL AMENDMENTS FOR REVIEW]

Formatted: Font color: Red

~~1.~~ PURPOSE

1. ~~—~~The University aspires to maintain the highest ethical, legal, environmental, managerial and professional standards in the management of resources that have been entrusted to it as a publicly funded institution. These standards can only be achieved in an environment that promotes and supports sound fiscal management and accountability, risk minimization, long-term sustainability, and social responsibility. To this end, the policy on the Procurement of Goods and Services is designed to define and guide in the management and control of financial expenditures in an open, fair and transparent manner and in accordance with the broader regulatory requirements.

Formatted: Font: (Default) Calibri, 11 pt

DEFINITIONS

Formatted: Font: Bold

2. This section intentionally left blank.

Formatted: Font: (Default) Calibri, 11 pt, Bold

Formatted: Normal, No bullets or numbering

~~3.~~ SCOPE AND AUTHORITY

Formatted: Indent: Left: 0.5", No bullets or numbering

Formatted: Font: (Default) Calibri, 11 pt, Bold

3. The policy and associated procedures apply to all acquisitions, contracts and agreements involving the use of university operating, capital, ancillary, research and all other funds held in trust or at its disposal. All acquisitions shall be compliant with provincial and federal laws, trade agreements and related university policies and procedures and guidelines.

Formatted: Normal, No bullets or numbering

4. The Vice-President, Administration (VPA), or successor thereof is the Policy Owner and is responsible for the interpretation and administrative direction of this policy and associated procedures and guidelines to ensure their consistency with other university policies, as well as broader regulatory requirements. This office is also responsible for ensuring appropriate accountability measures are in place at all levels.

Formatted: Add space between paragraphs of the same style

~~The policy and associated procedures apply to all acquisitions, contracts and agreements involving the use of university operating, capital, ancillary, research and all other funds held in trust or at its disposal. All acquisitions shall be compliant with provincial and federal laws, trade agreements and related university policies and procedures and guidelines.~~

Approved by the University's Board of Governors, December 2009, amended September 2010, and November 22, 2012.

5. The Manager of Procurement, under the direction of the VPA, will ensure the day to day implementation and coordination of training of staff about the associated procedures and guidelines, as well as the regular review of the purchasing procedures to ensure that the university's procurement processes are subject to continuous improvement and refinement.

~~2.~~ **POLICY**

6. The University is committed to managing its procurement of goods and services in a manner that is consistent with current procurement principles, standards and metrics and adheres to applicable provincial and federal standards and regulatory requirements. To this end, all individuals involved in the planning, purchasing, contracting, logistics and payment of goods and services shall at all times ensure that funds entrusted to the university are used in a responsible, efficient and effective manner, and must:

   - 6.1. Act and be seen to act with integrity and professionalism;
   - 6.2. Not engage in any activity that may create, or appear to create, a conflict of interest, and ensure that all potential, perceived, actual and apparent conflicts of interest are properly disclosed, and appropriately considered and managed;
   - 6.3. Undertake the contracting and purchasing of activities in a fair and transparent manner and with a view to obtaining the best value for appropriate levels of quality and service;
   - 6.4. Conduct themselves in accordance with the University's Supply Chain Code of Ethics and the laws of Canada and Ontario; and
   - 6.5. Give appropriate consideration to those goods and services which reflect the university's commitment to accessibility, sustainability and broader social responsibilities.

7. All documentation relating to the procurement of goods and services shall be executed within the scope of authority as set out in the university's Signing Authority ~~Registry~~ and Approval of Expenditures Procedures.

8. Failure to adhere to this ~~policy~~ Policy and its associated ~~procedures~~ Procedures and guidelines may result in disciplinary action.

MONITORING AND REVIEW

9. This Policy will be reviewed as necessary and at least every three years. Vice-President, Administration, or successor thereof, is responsible to monitor and review these Procedures.

~~1.~~ The ~~p~~Procedures and associated rates and schedules will be reviewed from time to time, and may be adjusted as required by the university policies and broader regulatory requirements.

10.

RELEVANT LEGISLATION

11. Broader Public Sector Accountability Act~~3. SCOPE AND AUTHORITY~~
    Canadian Free Trade Agreement

Formatted: Font: (Default) Calibri, 11 pt
Formatted: Indent: Left: 0", First line: 0"
Formatted: Font:
Formatted: List Paragraph, Outline numbered + Level: 1 + Numbering Style: 1, 2, 3, … + Start at: 1 + Alignment: Left + Aligned at: 0" + Indent at: 0.5"
Formatted: Font:
Formatted: Outline numbered + Level: 2 + Numbering Style: 1, 2, 3, … + Start at: 1 + Alignment: Left + Aligned at: 0.75" + Indent at: 1.25"
Formatted: Add space between paragraphs of the same style, Outline numbered + Level: 2 + Numbering Style: 1, 2, 3, … + Start at: 1 + Alignment: Left + Aligned at: 0.75" + Indent at: 1.25"
Formatted: List Paragraph, Outline numbered + Level: 1 + Numbering Style: 1, 2, 3, … + Start at: 1 + Alignment: Left + Aligned at: 0" + Indent at: 0.5"
Formatted: Font:
Formatted: Font:
Formatted: Font:
Formatted: Font: 11 pt, Bold
Formatted: Add space between paragraphs of the same style
Formatted: Font: Bold
Formatted: Font: 11 pt, Bold
Formatted: Indent: Left: 0", Space After: 6 pt, Tab stops: Not at 0.5"
Formatted: Font: Not Bold
Formatted: Font: Not Bold

Canada-European Union Comprehensive Economic and Trade Agreement
Defence Production Act

~~The Vice-President, Administration (VPA) is responsible for the interpretation and administrative direction of this policy and associated procedures and guidelines to ensure their consistency with other university policies, as well as broader regulatory requirements. This office is also responsible for ensuring appropriate accountability measures are in place at all levels.~~

~~The policy and associated procedures apply to all acquisitions, contracts and agreements involving the use of university operating, capital, ancillary, research and all other funds held in trust or at its disposal. All acquisitions shall be compliant with provincial and federal laws, trade agreements and related university policies and procedures and guidelines.~~

~~The Manager of Procurement, under the direction of the VPA, will ensure the day to day implementation and coordination of training of staff about the associated procedures and guidelines, as well as the regular review of the purchasing procedures to ensure that the university's procurement processes are subject to continuous improvement and refinement.~~

4. ~~ASSOCIATED~~RELATED POLICIES, PROCEDURES ~~AND GUIDELINES~~& DOCUMENTS

~~All procurement activities must adhere to standards and procedures as outlined in the associated procedures and guidelines, which include the following: [insert links]~~

12. Procurement of Goods and Services ~~Policy and~~ Procedures

Accessibility Policy
Biosafety Manual
Conflict of Interest in Research Policy
Conflict of Interest Procedure
Contract Management and Signing Authority Policy
Signing Authority and Approval of Expenditures Procedures
Legal Review of Contracts Procedure
Controlled Goods Policy
Ethical Conduct Policy
Expense Policy and Procedures
Gift Acceptance Policy
Health and Safety Policy and related Procedures
Policy on the Care and Use of Animals in Research and Teaching
Procedures for the Determination of Contractor Status
Radiation Safety Manual
Risk Management Policy
Safe Disclosure Policy
Safe Disclosure Procedures
Statement of Investment Policy
Supply Chain Code of Ethics
~~Academic Staff Employment Policy~~
- ~~Conflict of Interest in Research Policy~~
- ~~Gift Acceptance Policy~~
- ~~Health and Safety Policy and Procedures~~

Formatted: List Paragraph, Tab stops: 0.5", Left
Formatted: Font: (Default) +Body (Calibri), 10 pt, Not Bold
Formatted: Indent: Left: 0", First line: 0", Don't keep with next, Tab stops: Not at 0.5"
Formatted: Font: (Default) Calibri
Formatted: List Paragraph, Outline numbered + Level: 1 + Numbering Style: 1, 2, 3, … + Start at: 1 + Alignment: Left + Aligned at: 0" + Indent at: 0.5", Tab stops: 0.5", Left
Formatted: Font:
Formatted: Space After: 6 pt, Don't add space between paragraphs of the same style, Outline numbered + Level: 1 + Numbering Style: 1, 2, 3, … + Start at: 1 + Alignment: Left + Aligned at: 0" + Indent at: 0.5"
Formatted: Font: (Default) Calibri, 11 pt
Formatted: Normal, Indent: Left: 0.5", No bullets or numbering
Formatted: Font: (Default) Calibri, 11 pt
Formatted: Font: (Default) Calibri, 11 pt
Formatted: Normal, Indent: Left: 0.5", No bullets or numbering
Formatted: Font: (Default) Calibri, 11 pt
Formatted: Font: (Default) Calibri, 11 pt
Formatted: Normal, Indent: Left: 0.5", No bullets or numbering
Formatted: Font: (Default) Calibri, 11 pt
Formatted: Font: (Default) Calibri, 11 pt
Formatted: Font: (Default) Calibri, 11 pt
Formatted: Normal, Indent: Left: 0.5", No bullets or numbering
Formatted: Font: (Default) Calibri, 11 pt
Formatted: Font: (Default) Calibri, 11 pt
Formatted: Normal, Indent: Left: 0.5", No bullets or numbering
Formatted: Font: (Default) Calibri, 11 pt
Formatted: Normal, Indent: Left: 0.5", No bullets or numbering

- ~~Radiation Safety Manual~~
- ~~Biosafety Manual~~

~~Animal Care and Use Policies and Guidelines~~

- ~~Investment Policy~~
- ~~Procedures for the Determination of Contractor Status~~
- ~~Risk Management Policy (under development)~~
- ~~Signing Authority Registry and Approval Procedures~~
- ~~Signing Authority Policy~~
- ~~Supply Chain Code of Ethics~~
- ~~Expense Policy and Procedures~~
- ~~Whistleblower Policy~~

~~**External procedures and guidelines:**~~

- ~~Supply Chain Guidelines, Ontario Ministry of Finance~~

~~5. REVIEW~~

~~The procedures and associated rates and schedules will be reviewed from time to time, and may be adjusted as required by the university policies and broader regulatory requirements.~~

Formatted: Font: (Default) Calibri, 11 pt

Formatted: Normal, Indent: Left: 0.5", No bullets or numbering

Formatted: Normal, Indent: Left: 0", Tab stops: Not at

Formatted: Indent: Left: 0", First line: 0", Tab stops: Not at 0.5"

Formatted: Normal, No bullets or numbering, Tab stops: Not at 0.5"

Formatted: Space After: 6 pt, Tab stops: Not at 0.5"

Formatted: Normal, Indent: Left: 0", Tab stops: Not at

Formatted: Tab stops: Not at 0.5"

Formatted: Indent: Left: 0"

Formatted: Indent: Left: 0.5", Space After: 0 pt

Classification Number	LCG 1131.01
Parent Policy	Procurement of Goods and Services Policy
Framework Category	Legal, Compliance and Governance
Approving Authority	Audit and Finance Committee
Policy Owner	Vice-President, Administration
Approval Date	~~February 23, 2022~~DRAFT FOR CONSULTATION
Review Date	March 2025
Supersedes	Editorial Amendments, February 18, 2020; March 27, 2017; Minor Amendment, s. 6.1, s 9; Major Amendment November 2012; Purchasing Procedures (March 2009)

Procurement of Goods and Services Procedures

PURPOSE

1. The purpose of these Procedures is to complement the Procurement of Goods and Services Policy by serving to define and guide individuals in fulfilling their responsibilities and obligations throughout each phase of the procurement process. These procedures are consistent with the Broader Public Sector Procurement Directive, Supply Chain Code of Ethics, Building Ontario Businesses Initiative Act, Bill S-211, Canadian Free Trade Agreement, Canada-European Union Comprehensive Economic and Trade Agreement, and have been developed to ensure that all goods and services are acquired by the University through a process that is open, fair and transparent.

DEFINITIONS

2. For the purposes of these Procedures the following definitions apply:

"Accessibility" means the degree of ease that something (e.g. goods, service, facilities) can be used and enjoyed by persons with a disability. The term implies conscious planning, design and/or effort to ensure it is barrier-free to persons with a disability.

"Accessible Procurement" means determining what is required for a product or service to be accessible, and either consulting with persons with disabilities, finding ways to procure something that meets those requirements or, documenting why this is not possible and what will be done if an accessible alternative is requested.

"Building Ontario Businesses Initiative Act ('BOBIA')" means the act that requires publicly funded organizations to give businesses in Ontario preference when conducting procurements for goods and services (consulting and non-consulting) under $121,200 threshold.

Formatted: Font: Not Bold

"Contract" means any document, or other evidence, of an intention to establish a binding legal relationship between the University and one or more third parties.

"CFTA" means Canadian Free Trade Agreement.

"CETA" means Canadian European Trade Agreement.

"Forced and Child Labour in Canadian Supply Chains" (Bill S-211) means that the University must ensure that when purchasing goods & services that exploitative practices are addressed and eradicated from the supply chain.

Formatted: Font: Not Bold

"Goods" means moveable property, as well as the costs of installing, operating, maintaining or manufacturing such moveable property which are purchased, rented or leased by the University, including raw materials, products, equipment and other physical objects of every kind and description whether in solid, liquid, gaseous or electronic form, unless they are procured as part of a general construction contract. It includes capital items, such as furniture, research equipment, telecommunications and computers, peripheral equipment and acquisitioned software where there is a one-time license fee and other items that have a useful life greater than one year.

Goods also include materials and equipment used for research purposes, such as controlled goods, animals, biohazardous, radioactive and other hazardous materials and equipment. The acquisition of these materials requires additional procurement procedures as outlined in Appendix B.

"Services" means any intangible product that does not have a physical presence. No transfer of possession or ownership takes place when services are sold, and they (1) cannot be stored or transported, (2) are instantly perishable, and (3) come into existence at the time they are bought and consumed. This includes construction related services.

"Consulting Services" is limited to the provision of expertise or strategic advice that is presented for consideration and decision-making. This does not include contractors who are performing work on a fee for service basis and who are NOT providing strategic/decision-making advice (e.g. police officers, specialists for disabilities, sign language interpreters, etc.). Consulting services are subject to different procurement practices than all other goods and services. A working list of common services procured by universities that would be deemed consulting services is provided in Appendix A.

"Limited Tendering" means a procurement method whereby the procuring entity contacts a supplier or suppliers of its choice.

"Procurement by Invitation" means the request of a bid, quote or proposal by the purchaser or Procurement Department.

"Purchase Order" means a written offer made by a purchaser to a vendor that formally sets out the terms and conditions of the proposed transaction.

"Purchaser" means the Ontario Tech Department that is initiating the purchase.

"Open Procurement" means a competitive procurement process open to all qualified and interested bidders.

"Requisition" means the process of initiating documentation for the applicable Means of Procurement.

"Regulated and Restricted Goods" means certain goods and services that require additional technical and/or regulatory approval or other review from a designated approving department to ensure they comply with internal university standards, licenses and regulatory requirements.

"Budgeting" means the process of determining whether there are sufficient funds available to commit the University to the purchase.

"Commitment" means the act of formally binding the University to a purchasing agreement.

"Receipt" means the physical receipt of the purchased goods or services by University personnel.

"Payment" means the processing of payment and transfer of funds from the University to the vendor, supplier or contractor.

SCOPE AND AUTHORITY

3. These Procedures apply to all purchases of Goods, Services or Consulting Services at the University.

4. These Procedures do not apply to payments related to employment or honoraria.

5. The Vice President Administration, or successor thereof, is the Policy Owner and is responsible for overseeing the implementation, administration and interpretation of these Procedures.

POLICY

6. Procurement Principles

6.1. Segregation of Duties

The University requires that at least three of the following five functional procurement roles are segregated between different departments or, at a minimum, between different individuals:

a) Requisition

b) Budgeting

c) Commitment

d) Receipt

e) Payment

6.2. Signing Authority and Approval

All Goods and Services purchased at the University must be approved at the outset by the appropriate authority signing authority. Requirements for procurement are determined by the type of Good or Service to be purchased, as well as the financial (pre-tax) threshold of the expenditure. If the amount of a purchase is amended or increased after the order has been authorized, the revised total expenditure (original amount plus increase) will be used to determine approval authority.

6.3. Types of Purchase

The procurement process to be followed is determined by the type of purchase to be made: (a) Goods and Services, or (b) Consulting Services.

6.4. Sustainable and Socially Responsible Procurement

Formatted: Font: Bold

a) Sustainable Procurement: The Sustainable Procurement framework supports activities that create positive environmental, social, and economic impacts, maintaining an open, fair, and transparent process. The University will identify and integrate environmental sustainability requirements within procurement opportunities.

b) Social Value Considerations: Prioritizes the procurement of goods and services that demonstrate value for money, considering business needs, timing, lifecycle costs, supply, and procurement methods with fairness, transparency, and accountability as guiding principles.

Formatted: Font: Not Bold

Formatted: Space After: 6 pt, Add space between paragraphs of the same style

Formatted: Outline numbered + Level: 3 + Numbering Style: a, b, c, … + Start at: 1 + Alignment: Left + Aligned at: 1.25" + Indent at: 1.75"

7. Threshold Values and Means of Procurement

7.1. The means by which goods and services are procured is determined by the total value in Canadian dollars of the item(s), before tax, in accordance with the chart below and as described in the subsequent sections of this procedure. The total cost will include the cost of associated warranties, maintenance and service agreements.

MEANS OF PROCUREMENT	REQUIREMENTS	THRESHOLDS
CONSULTING SERVICES		
Purchase Order	Three written quotations (by invitation); from an Ontario based business (BOBIA)	$0- $~~99~~121,~~999~~199.99
Purchase Order	Open competitive process	$~~100~~121,~~000~~ 200 or more
GOODS AND SERVICES (NON-CONSULTING)		
Purchase Order, Purchasing Card or approved invoice processed through Accounts Payable	One written quotation (by invitation); from an Ontario based business (BOBIA)~~Authorized cardholder and approval based on Signing Authority Registry~~	$0 - $9,999.99
Purchase Order	Two written quotations (by invitation); from an Ontario based business (BOBIA)	$10,000 - $24,999.99
Purchase Order	Three written quotations (by invitation); from an Ontario based business (BOBIA)	$25,000 - $~~99~~121,~~999~~199.99
Purchase Order	Open competitive process	$~~100~~121,~~000~~ 200 or more

7.2. Any attempt to circumvent or otherwise manipulate the thresholds used to determine the means of procurement (e.g., dividing a single procurement into multiple procurements) is strictly prohibited, and will result in delay of the purchase as the individual undertaking the requisition will be required to obtain additional quotes.

7.3. Under special circumstances, Limited Tendering may be used to have the quotation requirement waived.

~~7.3.~~7.4. Where possible, and without compromising overall best value, purchasing preference for goods and services under $121,200 should be sourced locally within the Province of Ontario or Canada.

8. Competitive Procurement

8.1. All Goods and Services valued greater than $10,000 will be procured by an invitational or open competitive procurement process. An open competitive procurement process may be used, regardless of value, due to the high-profile nature of the requirement, at the discretion of the Procurement Department, or where required by an external organization. If an existing Vendor of Record (VOR) contract is in place that satisfies the conditions of the Broader Public Sector (BPS) and other relevant trade agreements, you may select this vendor without obtaining additional quotes. However, if multiple vendors are listed under the Vendor of

Record, it is encouraged to obtain multiple quotes to ensure competitive pricing and service options.

9. Open Competitive Procurement

9.1. All Goods and Services that are valued at greater than $1~~00,0~~21,200 must be procured through an Open Procurement in order to solicit and evaluate bids in a fair, impartial manner prior to the issuing of a Purchase Order.

9.2. The Open Competitive Procurement process involves the following four stages**:**

a) Development of a bid request;

b) Posting and receipt of bid requests;

c) Evaluation of bid requests; and

d) Contract and award notification.

9.3. Detailed information and guidance regarding each of the above stages is included in Appendix C.

10. Purchase Orders

10.1. A Purchase Order must be used for all purchases of Consulting Services regardless of value, as well as Goods and Services, as required by the Threshold Values.

10.2. There are certain Goods and Services for which a Purchase Order may not be acceptable or appropriate. Such items may be procured through alternative means such as cheque requisitions, or expense reports.

10.3. Items exempt from a Purchase Order include the following:

a) Customs

b) Courier and freight charges

c) Conference or seminar fees

d) Course registration fees

e) Debt payments, including interest payments

f) Donations

g) Elevator license fees

h) Insurance premiums

i) Inter-institutional expenses or transfers

j) Investments and related fees

k) Leasehold payments

l) Membership fees

m) Petty cash items

n) Real property charges

o) Recruitment agency fees

p) Refunds

q) Registry fees

r) Sponsorship fees

s) Subscription fees

t) Support Allowance fees

u) Taxes and charges

v) Travel expenses

w) Utilities

x) Vehicle license fees

y) Animal Care Veterinarian Services

z) Patent Agents

11. Purchase Requisitions

11.1. A purchase requisition is a document used as part of the accounting process to initiate a merchandise or supply purchase. A purchase requisition identifies the business need for the Goods or Services and ensures appropriate controls are in place to monitor the legitimacy of a purchase.

11.2. All requisitions regardless of Purchase Order type must include:

a) Valid Banner ID/Supplier Number

b) Contact information of purchaser;

c) Vendor contact information;

d) Product or quote information including quote number, item description, catalogue or order number, quantity, pricing, and unit of measure, etc.;

e) Date by which Goods and Services must be received;

f) Account information (fund, org, account);

g) Quotation, justification to validate the use of Limited Tendering;

h) Where applicable any separate agreement and a note on restricted goods as outlined in Appendix B.

11.3. If the supplier does not have a valid Banner ID/supplier number, the individual initiating the transaction must complete the Supplier Setup Form. The Procurement Department will then check the validity of the Supplier through the Canadian Revenue Agency website and internet search before the Supplier record is established.

11.4. Purchase requisitions must be created and approved using the online Web Requisition portal and accompanied by the appropriate supporting documentation. There are requisitions for two types of Purchase Orders:

a) **Regular Purchase Order:** Generally used for Goods and Services purchased at the time and paid for in a lump sum.

b) **Blanket Purchase Order:** A blanket Purchase Order is an order of Goods and/or Services processed by the University with a supplier that contains multiple delivery dates scheduled over a fiscal year, sometimes at predetermined prices. It is normally used when there is a recurring need for Goods and/or Services. Accordingly, items are purchased under a single Purchase Order rather than processing a separate Purchase Order each time Goods and/or Services are needed.

12. Equipment Standards

12.1. Purchases of IT hardware, including laptops, tablets, workstations, monitors, printers and servers, with the exception of research hardware, must be selected from the list of standard hardware models and purchased or leased through a Purchase Order from the designated preferred vendor, as established by Information Technology Services (ITS).

13. Furniture

13.1. Requisitioners are asked to consult OCIS by phone or through a Service Desk request before purchasing office or classroom furniture to ensure that there is not existing inventory that would meet the requirements.

14. Lab Consumable Supplies and Minor Equipment

14.1. Before purchasing Lab Supplies & Equipment please contact centralstores@ontariotechu.ca

15. Lab Chemicals, and regulated and restricted goods

15.1. These items cannot be purchased using a purchasing card unless exempt by the appropriate signing authority. See Appendix B for more information regarding regulated and restricted goods.

15.2. All lab chemicals, and regulated and restricted goods will be purchased using a Purchase Order or through an authorized individual to ensure compliance with applicable legislation and regulations, and University policy and procedures.

15.3. All Purchase Order of lab chemicals, and regulated and restricted goods must be signed off by the appropriate signing authorities: Biosafety Officer, Radiation Safety Officer, designated official (controlled goods), Health and Safety Officer (designated substances), or Animal Care Coordinator in the Office of Research Services (animal care and use).

15.4. When completing a purchase requisition for any of the Restricted Items Requiring a Purchase Order, the following information must be included in the comments section of the requisition form:

a) Researcher/ Purchaser name;

b) Certificate/permit approval number as assigned by the relevant research compliance committee (Animal Care Committee, Biosafety Committee or Radiation Safety Committee;

c) Indicate if the material is biohazardous, radioactive, animals, controlled goods, hazardous. In rare circumstances, restricted items may be purchased using an alternative procurement method (e.g. purchasing card); however, prior approval must be sought from the Office of Research Services (Biosafety officer/Radiation Safety officer/Animal Care Coordinator).

16. Execution of Purchase Orders and Purchasing Agreements

16.1. On receipt of an approved purchase requisition, the Procurement Department will execute a Purchase Order which includes terms and conditions prior to the provision of Goods and Services and communicate this to the Purchaser and vendor. Unless a Purchase Order is issued under a separate written purchasing agreement between the purchaser and the vendor, the Purchase Order and any attachments are the sole agreement between the parties.

16.2. All purchasing agreements will include:

a) Cancellation or termination clauses, as appropriate. When conducting complex procurements, the university may consider the use of contract clauses that permit cancellation or termination at critical project life-cycle stages.

b) The specific term of the agreement and any options to extend the agreement. Any change or amendment to the term of a purchasing agreement will be made in accordance with the Signing Authority Registry and Approval Procedures and requires review by the Procurement Manager.

17. Receipt of Goods

17.1. All Goods are to be delivered to Shipping/Receiving, unless otherwise specified in the purchase requisition. Goods must be accompanied by a packing slip that indicates the Purchase Order number.

17.2. Shipping/Receiving will contact the Purchaser to indicate arrival of the order. The Purchaser or designate is responsible for signing the packing slip to validate that the Goods received are in accordance with the Purchase Order.

17.3. If Goods received are not in accordance with the Purchase Order, the Purchaser is responsible for following up with the vendor, in consultation with the Procurement Department.

18. Payment of Invoices

18.1. Payment through Accounts Payable would be though remitting the invoice, along with other required documentation (e.g. a cheque requisition), to Accounts Payable.

18.2. All invoices must be sent directly to Accounts Payable by the vendor. Invoices will be forwarded by Accounts Payable to the purchaser for approval prior to payment. All invoices for Goods submitted by the Purchaser for payment must be accompanied by a signed packing slip and sent to Accounts Payable.

19. Return of Goods

19.1. For any Good that needs to be replaced or returned, it is the responsibility of the Purchaser to contact the vendor and make the appropriate arrangements in

consultation with the Procurement Department. Where the replacement or return requires a change to the terms of the original Purchase Order, the purchaser will contact the Procurement Department to initiate the change.

20. Trade Agreements

20.1. General

The University will ensure the provisions of both the CFTA and CETA are considered during procurement activities and throughout the competitive tendering process. Both trade agreements are similar; however, CFTA is triggered first since that treaty has far lower thresholds for publicly tendering.

20.2. CFTA

CFTA will apply for the procurement thresholds listed on https://www.cfta-alec.ca/procurement/covered-procurement-thresholds/

*Rates are in CDN currency and subject to inflation adjustment.

20.3. CETA

CETA will apply for the procurement thresholds listed on: https://www.canada.ca/en/treasury-board-secretariat/services/policy-notice/contracting-policy-notice-2019-4-trade-agreements-thresholds-update.html

* Amounts are in CDN currency and subject to inflation adjustment

20.4. Valuation

In estimating the value of a procurement for the purpose of ascertaining whether it is a covered procurement, a procuring entity will include the estimated maximum total value of the procurement over its entire duration, whether awarded to one or more suppliers, taking into account all forms of remuneration, including premiums, fees, commissions and interest; and if the procurement provides for the possibility of options, the total value of such options.

21. Limited Tendering

21.1. Limited Tendering represents a departure from the required number of quotes, as set out above, and must be accompanied by a waiver setting out the rationale for limited tendering. Limited tendering must be approved in advance of the purchase by the following:

a) Purchases $10,000 - $25,000: the waiver must be approved by the Procurement Manager and Director of Financial Operations.

b) Purchases over $25,000 the waiver must be approved by the Procurement Manager and the Vice President Administration.

c) Purchases of consulting services requires the waiver to be approved by the Procurement Manager, the Vice President Administration, and the President.

21.2. All such requests for using Limited Tendering must be approved in advance before the procurement process begins. If the Limited Tender is not approved in advance it runs the risk of not being approved and the vendor not being paid.

21.3. Requests for Limited Tendering

In order to obtain approval for Limited Tendering, the purchaser must make a formal request to the Procurement Department with a written explanation as to why it would be impracticable or otherwise inappropriate to put the Good or Service out for competitive procurement. Such requests should include specific requirements of the Good or Service, evidence that an objective market analysis has been undertaken and that the cost charged by the vendor is fair and reasonable. If the Good or Service is being purchased through a distributor of the manufacturer, a letter from the manufacturer should be obtained indicating a sole source distributor relationship exists between the parties.

21.4. Granting Use for Limited Tendering

a) The use of Limited Tendering may be granted in the following special, limited circumstances:

b) If no tenders were submitted or no suppliers requested participation or if no tenders conformed to the essential requirements of the tender documentation or no suppliers satisfied the conditions for participation or if the submitted tenders were collusive (provided that the requirements of the tender documentation are not substantially modified);

- If the goods or services can be supplied only by a particular supplier and no reasonable alternative or substitute goods or services exist for any of the following reasons:
- the requirement is for a work of art;
- the protection of patents, copyrights, or other exclusive rights;
- due to an absence of competition for technical reasons;
- the supply of goods or services is controlled by a supplier that is a statutory monopoly;
- to ensure compatibility with existing goods or to maintain specialized goods that must be maintained by the manufacturer of those goods or its representative;
- work is to be performed on property by a contractor according to provisions of a warranty or guarantee held in respect of the property or the original work;
- work is to be performed on a leased building or related property, or portions thereof, that may be performed only: by the lessor; or
- the procurement is for subscriptions to newspapers, magazines, or other periodicals;

c) For additional deliveries by the original supplier of goods or services that were not included in the initial procurement, if a change of supplier for such additional goods or services: (i) cannot be made for economic or technical

reasons such as requirements of interchangeability or interoperability with existing equipment, software, services, or installations procured under the initial procurement; and (ii) would cause significant inconvenience or substantial duplication of costs for the procuring entity;

d) If strictly necessary, and for reasons of urgency brought about by events unforeseeable by the University, the goods or services could not be obtained in time using open tendering;

e) For goods purchased on a commodity market;

f) If a procuring entity procures a prototype or a first good or service that is developed in the course of, and for, a particular contract for research, experiment, study, or original development. Original development of a first good or service may include limited production or supply in order to incorporate the results of field testing and to demonstrate that the good or service is suitable for production or supply in quantity to acceptable quality standards, but does not include quantity production or supply to establish commercial viability or to recover research and development costs;

g) For purchases made under exceptionally advantageous conditions that only arise in the very short term in the case of unusual disposals such as those arising from liquidation, receivership, or bankruptcy, but not for routine purchases from regular suppliers;

h) If a contract is awarded to a winner of a design contest provided that: (i) the contest has been organized in a manner that is consistent with the principles of Chapter 5 of CFTA, in particular relating to the publication of a tender notice; and (ii) the participants are judged by an independent jury with a view to a design contract being awarded to a winner;

i) If goods or consulting services regarding matters of a confidential or privileged nature are to be purchased and the disclosure of those matters through an open tendering process could reasonably be expected to compromise government confidentiality, result in the waiver of privilege, cause economic disruption, or otherwise be contrary to the public interest.

21.5. Preferred Vendors

a) Preferred vendors are established via a contract or agreement with the University following a competitive procurement process. Agreements for preferred vendors have set terms, conditions and/or pricing over a fixed period of time in order to maximize its ability to achieve the best economic value for its expenditures. A current list of preferred vendors is available through the Procurement Department.

21.6. Where the University has established such contracts or agreements, Goods and Services should be purchased against these contracts from these preferred vendors.

~~**b)**~~**21.7.** If an existing Vendor of Record (VOR) contract is in place that satisfies the conditions of the Broader Public Sector (BPS) and other relevant trade agreements, you may select this vendor without obtaining additional quotes. However, if multiple vendors

Formatted

are listed under the Vendor of Record, it is encouraged to obtain multiple quotes to ensure competitive pricing and service options.

MONITORING AND REVIEW

22. These Procedures will be reviewed as necessary and at least every three years. The Procurement Manager, or successor thereof, is responsible to monitor and review these Procedures.

RELEVANT LEGISLATION

23. Broader Public Sector Financial Accountability Act

Canadian Free Trade Agreement

Canada-European Union Comprehensive Economic and Trade Agreement

RELATED POLICIES, PROCEDURES & DOCUMENTS

24. Accessibility Policy

Procurement of Goods and Services Policy

~~Academic Staff Employment Policy~~

Conflict of Interest in Research Policy

Gift Acceptance Policy

Designated Substance Permit

Health and Safety Policy

Radiation Safety Manual

Biosafety Manual

Policy on the Care and Use of Animals in Research and Teaching

Statement of Investment Policy and Procedures

Procedures for the Determination of Contractor Status

Risk Management Policy

~~Signing Authority Registry and Approval Procedures~~

Supply Chain Code of Ethics

Expenses Policy

Expenses Procedures

Safe Disclosure Policy

Safe Disclosure Procedures

Contract Management and Signing Authority Policy

Signing Authority and Approval of Expenditures Procedure

Legal Review of Contracts Procedures

Supply Chain Code of Ethics

APPENDIX A: NON-CONSULTING AND CONSULTING SERVICES

The following is a list of services that are commonly used by universities and that would be deemed to be "Services", and not "Consulting Services" as defined in the Procurement Directive under the Broader Public Sector Financial Accountability Act (Bill 122).

1 - NON-CONSULTING SERVICES		
REVIEWS (predominantly subject matter experts)	Academic departmental/peer reviews Faculty/decanal review Division reviews Endowed chair reviews Dean initiated reviews Reviewers for chair selection processes Governance reviews Research/scientific reviews	Research/curriculum development/expertise Accreditation reviews Undergraduate and graduate program reviews Clinical program reviews/clinical trial reviews Thesis defense and reviews Independent review of a student's evaluation Evaluation specialists or performance measurement specialists
SPEAKERS	Invited Facilitators for retreats (sometimes working on strategic plans) and workshops	Invited Speakers – for lectures, research seminars, endowed lecture series, continuing educational series programs, continuing professional development series
TRAINING	Training sessions	ITS course trainers
TECHNICAL SERVICES	Design and print agencies Program brochure design/printing/mailing Annual report / newsletter design services/printing Technical writers, copy and writing editors or case writers – speech and article writers Business plan writing Consultants to write analytical summaries of specific government conferences Project management Business development Web design/maintenance	Event planning or management services TSSA – Technical Safety Standards Association ESA – Electrical Safety Association BI&I – insurance company, that does inspections DJ services Couriers Sports game officials Translation services/transcription services English language training provided by Applied Language Associates Onsite ergonomists

	Graphic services Videotaping and production for teaching support materials Photographers AV support/recording of continuing education programs Audio support/equipment rental for convocation and outdoors	Implementation services for proprietary equipment (usually through an RFP) Security services Police officers[1] Specialists for disabilities[1] Sign language interpreters[1] Musicians[1]
IT SERVICES	Scheduling system maintenance Cable installers Hosting services (servers and web) Design analysis for ITS hardware/software/facilities	Computer programmers hired to develop surveys/databases Service on equipment/software where service or warranty no longer applies
HR/STAFFING	Non-continuing non-employment remuneration (NCNER) compensation Retired faculty members paid through NCNERs Preceptor payments Psychologists HR counselling/coaching services Career advisors offering training, coaching and assistance with applications and career strategies for students Career transition consultants	Benefit provider -employee assistance program (family counselling) Benefit provider -mental health and addiction counselling Compensation and evaluation providers health, dental, insurance benefit plan administration services Mediators Investigators Recruitment specialists
FINANCIAL / MONEY MANAGEMENT	Moneris/PSIgate Investment management services related to pension plans and endowments Custodial investment services related to pension plans and endowments Banking services Procurement and travel card providers Insurance brokerages	Actuarial services Contingency based auditors (for tax recovery) Consulting services related to pension plan and endowments in regards to investment managers and market trends Audit services related to the pension plan and endowments financial statements Auditing and accounting agencies

2 - SERVICES THAT CAN BE EITHER CONSULTING OR NON-CONSULTING SERVICES[2]		
BUSINESS PLANNING	Strategic planning consultant	Management services
FINANCIAL MANAGEMENT BASED	Consulting services related to pension plan communication and actuarial reporting	Consulting services related to health, dental, and insurance benefit plans and administrative services
LICENSED PROFESSIONAL SERVICES	Legal services related to pension plans and labour issues[3] Legal fees for consultation[3] Legal advice/services related to clinical care[3]	

1. The Ministry of Finance has agreed these items are non-consulting services

2. Most of these services can be either consulting or non-consulting services. The differentiating factor is whether or not the service is "thinking" or strategic versus tactical in nature. Actual consulting services must be competitively bid regardless of value or signed off by President/Board of Governors.

3. Exempt under Canadian Free Trade Agreement (CFTA) therefore not required to be competitively bid but will require President or Board of Governors sign-off.

APPENDIX B: PURCHASES OF RESTRICTED ITEMS

1. In the interest of user and public safety, the purchase, use and disposal of restricted items is subject to provincial, federal and, in some cases, international legislation and regulations, in addition to University policy and procedures. To ensure compliance with applicable legislation and regulations, and University policy and procedures, all restricted items will be purchased using a Purchase Order, and must be signed off by the appropriate signing officials: Biosafety Officer, Radiation Safety Officer, designated official (controlled goods), Health and Safety Officer (designated substances), or Animal Care Coordinator Office of Research Services (animal care and use).

2. Restricted Items Requiring a Purchase Order

2.1. **Controlled goods** as listed in the Controlled Goods List, a schedule to the Defence Production Act. This includes military, strategic, and military-related goods and technology, as well as dual-use goods and technology as identified in Group 2 (not all items), Item 5504 and Group 6 (all items), of the Export Control List. This also includes any US-origin good or technology that is a “defence article” as defined under the ITAR or non-US origin goods that is manufactured using “technical data” of United States origin, as defined under the ITAR if the “technical data” is a “defence article”.

2.2. **Animals** used for research and/or teaching purposes as regulated by Canadian Council on Animal Care (CCAC) and OMAFRA Animals for Research Act.

2.3. **Controlled substances or controlled drugs** used for research/teaching purposes as defined by Health Canada, Office of Controlled Substances (OCS) as any type of drug that the federal government has categorized as having a higher-than-average potential for abuse or addiction. Controlled substances are listed in Schedules I, II, III, IV and V of the Controlled Drugs and Substances Act (CDSA) of Canada and Part G (Controlled) and Part J (Restricted) of the Food and Drug Regulations, under the Food and Drugs Act of Canada. Controlled status applies to the drugs themselves, their salts and derivatives and to diagnostic or test kits containing these drugs.

2.4. **Hazardous Materials**, as defined by the Ontario Occupational Health and Safety Act in its Workplace Hazardous Materials Information System (WHMIS) Regulation. These items must have WHMIS labels and be accompanied by a current Safety Data Sheet (SDS), and may also require transportation of dangerous goods (TDG) documentation.

2.5. **Designated Substances** as defined by the Ministry of Labour I Regulation 833 – Control of Exposure to Biological or Chemical Agents.

2.6. **Human Pathogens and Toxins and/or Biohazardous materials** used for research and/or teaching purposes, including possession, use, import and export of human pathogens and toxins as defined and regulated by the Public Health Agency Canada (PHAC) and the Canadian Food Inspection Agency (CFIA).

2.7. **Radioactive material or devices containing radioactive material and/or producing nuclear radiation** as defined and regulated by the Canadian Nuclear Safety Commission (CNSC).

2.8. **Devices emitting electromagnetic radiation, including microwaves, ultraviolet, x-ray and lasers (class 3b/4 lasers)** as regulated by the Ontario Occupational Health and Safety Act.

APPENDIX C: OPEN COMPETITIVE PROCUREMENT

Development of a Bid Request

1. **Needs Identification**

1. To ensure that the University obtains the most appropriate goods and/or services, the needs and objectives of the anticipated purchase, including all Accessibility requirements, must be well defined and communicated to potential vendors through a bid request.

2. Bid requests are normally executed through a "Request for Proposal (RFP)", which requests vendors to supply solutions for the delivery of complex products or services or to provide alternative options or solutions using predefined evaluation criteria in which price is not the only factor.

3. Where the results of informal supplier or product research are insufficient, formal processes such as a Request for Information (RFI) or Request for Expression of Interest

(RFEI) may be used if warranted, taking into consideration the time and effort required to conduct them.

a) A "Request for Expressions of Interest (RFEI)" is a document used to gather information on supplier interest in an opportunity or information on supplier capabilities/qualifications and helps the organization to gain a better understanding of the capacity of the supplier community to provide the services or solutions needed.

b) A "Request for Information (RFI)" is a document issued to potential suppliers that sets out a general or preliminary description of a problem or need and requests information or advice about how to better define the problem or need, or alternative solutions.

4. A response to RFI or RFEI must not be used to pre-qualify a potential supplier and must not influence the chances of the participating suppliers from becoming the successful proponent in any subsequent opportunity.

5. The University may also gather information about supplier capabilities and qualifications through a Request for Supplier Qualification (RFSQ). This mechanism may be used either to identify qualified candidates in advance of expected future competitions or to narrow the field for an immediate need. The terms and conditions of the RFSQ document must contain language that disclaims any obligation of the University to call on any supplier to provide goods or services as a result of pre-qualification.

a) Allow suppliers to apply at any time for inclusion on the pre-qualify suppliers list.

b) Allow all qualified suppliers to participate in a particular procurement, unless the procuring entity states in the notice of intended procurement any limitation on the number of suppliers that will be permitted to tender and the criteria for selecting the limited number of suppliers.

c) If the University rejects a supplier's request for participation in a procurement or application for inclusion on the pre-qualify suppliers list, ceases to recognize a supplier as qualified, or removes a supplier from a pre-qualify list, the University will promptly inform the supplier and, on request of the supplier, promptly provide the supplier with a written explanation of the reasons for its decision.

6. In developing bid requests, Accessible Procurement must be followed in the procurement process of the good, service or facility. Accessibility staff may be consulted to ensure a fair evaluation of Accessibility requirements. If it is determined that there are no Accessibility requirements to the goods, services or facilities being procured or that the Accessibility requirements are deemed not to be practicable, this decision and its explanation must be documented by the Procurement Department. A copy of this explanation will be made available to a member of the public upon request.

2. Evaluation Criteria

1. The criteria that will be used to evaluate the monetary and non-monetary aspects of the anticipated purchase, and the relative weighting of each factor, must be developed and defined as part of the bid request process. The criteria will serve to facilitate the review

of competing bids and ensure that the goods and/or services under consideration will meet the needs and objectives of the University.

2. The criteria to be used in evaluating potential vendors will include such monetary factors as price, quality, cost trends, lead-time, flexibility, technical capabilities and Accessibility requirements. In addition, potential vendors must also be:
    - **a)** Financially solvent and in good standing with the University;
    - **b)** In compliance with provincial, federal and international laws, regulations and trade agreements; and
    - **c)** In compliance with the technical requirements/deliverables of the tender document;
3. The methodology and process to be used in assessing the submissions must also be set out in advance, including the method of resolving a tie score. If the evaluation criteria is to be altered after the bid request is posted, an addendum must be made to the competitive procurement documents. Bid requests must also state that the addendum has been received, reviewed and will be complied with.
4. The University may request suppliers to provide alternative strategies or solutions as a part of their submission. Such alternative criteria must be established prior to posting of the bid request and cannot be considered unless they are explicitly requested in the competitive procurement documents.

3. Bid Requests

1. Documents pertaining to bid requests will be drafted by the Procurement manager, in consultation with the purchaser. All bid requests must clearly state:
    - **a)** The bid submission date and closing time. Suppliers must be given a minimum response time of 15 calendar days. Procurements that are high complexity, high risk and/or procurements that meet CETA thresholds will be accorded a response time of at least 30 calendar days;
    - **b)** The criteria, and weighting of the criteria, that will be used to evaluate submissions, along with the methodology to be used in assessing submissions;
    - **c)** A statement that submissions that do not meet the minimum requirements and/or minimum technical evaluation score will be disqualified;
    - **d)** The proposed term of the agreement and any options to extend the agreement (extending the term of agreement beyond that set out in the competitive procurement document amounts to non-competitive procurement where the extension affects the value and/or stated deliverables of procurement);
    - **e)** The cancellation or termination clauses, as appropriate;
    - **f)** The University's standard insurance clauses;
    - **g)** A bid resolution clause.
2. Bid request documents regardless of value must contain a form of agreement as defined by the Office of the University Secretariat and General Counsel Documents must be reviewed and approved by that office prior to their issuance. In circumstances where an

alternative procurement strategy has been used (i.e., a form of agreement was not released with the procurement document), the agreement between the University and the successful supplier must be defined formally in a signed written contract before the provision of supplying goods or services commences. Where an immediate need exists for goods or services, and the University and the supplier are unable to finalize the form of agreement, an interim purchase order or letter of intent may be used. The justification of such decision must be documented and approved by the appropriate authority.

4. Posting and Receipt of Bid Requests

1. Communications with potential suppliers concerning the posting of bid requests, both invitational and open, and acceptance of responses will be carried out by the Procurement Department to ensure the integrity of the competitive procurement process. In addition, the following must be adhered to:

a) The initial communication of any proposal must be communicated to all vendors at the same time;

b) All vendor responses must be due at the same time;

c) Any changes in due dates, requirements or information pertaining to the proposal or bid request must be communicated to all vendors at the same time and through the same method;

d) The bid proposal should be received in accordance with the bid documentation guidelines;

e) Any late proposals will not be accepted and will be returned to the supplier upon request;

f) All proposals and bid requests and responses and any subsequent feedback must be documented.

2. Calls for open competitive bid requests by the University will be posted by the Procurement Department on the electronic tendering system that is readily accessible by all Canadian and international suppliers (i.e. Biddingo). In addition, a selected or recommended group of suppliers may be invited to respond.

5. Evaluation of Bid Requests

1. An evaluation team must be established and framework developed to provide business, legal, technical, and financial input into the review and evaluation of bid proposals. All members of the evaluation team must be aware of the restrictions related to the use and distribution of confidential and commercially sensitive information collected through the competitive procurement process. They must also refrain from engaging in activities that may create or appear to create a conflict of interest and must sign a conflict-of-interest declaration and non-disclosure of confidential information agreement.

2. Each evaluation team member must complete an evaluation matrix based on multiple, pre-defined evaluation criteria to rate each of the submissions. Records of evaluation scores must be retained in accordance with the University's Records Classification and

Retention Schedule. Evaluators must ensure that everything they say or write about submissions is fair, factual, and fully defensible.

3. All qualified suppliers will be evaluated according to the same criteria and process. The submission that receives the best ranking and meets all mandatory requirements set out in the competitive procurement document must be declared the winning bid. The University must not discriminate or exercise preferential treatment in awarding a contract to a supplier as a result of a competitive procurement process.

4. The basis for supplier selection will be the best value, which may not be the lowest bidder. Best value will be based on predetermined criteria such as (but not limited to); quality, service, added value, partnership initiatives, availability to meet delivery or service requirements, warranties, lesser ongoing operational costs, etc. The University reserves the right to conduct discussions with selected suppliers for the purpose of "purchase by negotiation" in certain circumstances such as (but not limited to): the lowest bid received substantially exceeds the estimated cost of the goods, limited or reduced project funding, change to scope unknown at time of bid request, etc.

5. Bids will not be opened publicly unless determined by the University that a public opening is deemed appropriate.

6. Contract Award Notification

1. For Open Procurement, once the agreement between the successful supplier and the University is executed, the Procurement Department will post a notification of the contract award on the electronic tendering system within 72 days after the award of the agreement between the successful supplier and the University, in the same manner as the procurement documents were posted, listing the name of the successful supplier.

2. All unsuccessful suppliers will be notified by the Procurement Department and will be informed of their entitlement to request a de-briefing within 60 calendar days.

3. Any disputes arising from the competitive procurement process, the methods employed or decisions made in the administration of a proposal, tender, or quotation must be must be dealt with in an ethical, fair, reasonable, and timely fashion.

7. Tender Dispute Resolution

1. Should a supplier wish to review the decision of the University in any respect of any material aspect of the tender process and subject to having a debriefing, the supplier will submit an appeal in writing to the Procurement Department within 10 days of such a debriefing. Any appeal in writing that is not received in a timely manner will not be considered and the supplier will be notified in writing. A protest in writing will include the following:

   a) A specific identification of the provision and/or procurement procedure that is alleged to have been breached;

   b) A specific description of each act alleged to have been breached in the procurement process;

   c) A precise statement of the relevant facts;

   d) An identification of the issues to be resolved;

e) The supplier's arguments and supporting documentation; and

f) The supplier's requested remedy.

2. The manager, Procurement will respond, in writing, to the supplier within 10 days of receiving the tender protest. Should the supplier still not agree with the University's resolution, they can request a subsequent meeting with the CFO of the University. Should the supplier still not agree with the resolution they may bring the matter to the attention of an agreed upon mediator with no substantial interest in the outcome, to receive and consider the complaint and make appropriate findings and recommendations with respect to the complaint. Should both parties fail to agree on the identity of a mediator, or should mediation fail to bring about a resolution to the dispute, such dispute will then be transferred to a single arbitrator. The arbitrator will be appointed by agreement between the parties or, in default of agreement, such arbitrator will be appointed by a Judge of the Ontario Court of Justice (General Division) upon the application of any of the said parties.

8. Contract Management

1. The terms and conditions of any contractual agreement with vendors must be reviewed and approved by the manager of Procurement and the Director, Risk Management and Insurance and if the contract is facilities related, the director, Office of Campus Infrastructure and Sustainability. The University New Contract Control Form must be signed by the appropriate individuals listed on the form before sending the contract for final, formal senior level signature in accordance with the Signing Authority Registry.

2. Payments must be made in accordance with provisions of the contract. All invoices must contain detailed information sufficient to warrant payment. Any overpayments must be recovered in a timely manner.

3. Assignments must be properly documented. Supplier performance must be managed and documented, and any performance issues must be addressed.

4. To manage disputes with suppliers throughout the life of the contract, the University should include a dispute resolution process in their contracts.

5. For Services, the University must:

a) Establish clear terms of reference for the assignment. The terms should include objectives, background, scope, constraints, staff responsibilities, tangible deliverables, timing, progress reporting, approval requirements, and knowledge transfer requirements.

b) Establish expense claim and reimbursement rules compliant with the Broader Public Sector Expenses Procedure and ensure all expenses are claimed and reimbursed in accordance with these rules.

c) Ensure that expenses are claimed and reimbursed only where the contract explicitly provides for reimbursement of expenses.

Academic Council Report

SESSION:

Public ☒

ACTION REQUESTED:

Decision ☐
Discussion/Direction ☐
Information ☒

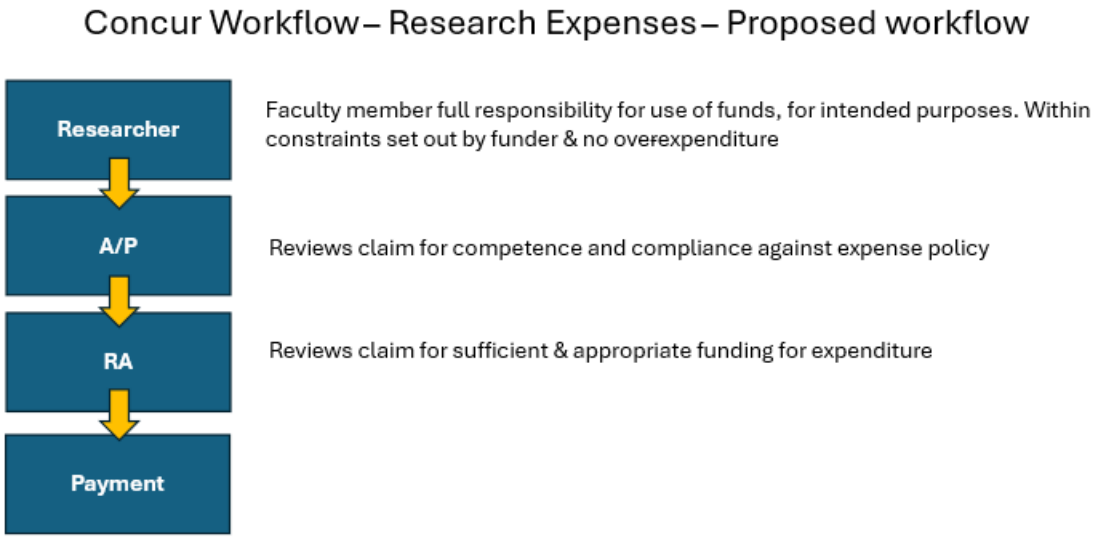
TO: **Academic Council**
DATE: **January 28, 2025**
PRESENTED BY: **Brad MacIsaac, Vice-President Administration**
SUBJECT: **Signing Authority and Approval of Expenditures Procedure Update**

ACADEMIC COUNCIL MANDATE:

In accordance with Article 1.3(b) of By-law No. 2, the Academic Council will be consulted on the establishment of Legal, Compliance and Governance Policies. Finance presents the attached Signing Authority and Approval of Expenditures Procedure for review and comment.

BACKGROUND/CONTEXT & RATIONALE:

Currently our signing authority policy states that Dean's must approve all research expense claims. The belief was that research expense claims required one up academic approval. In reviewing current tri-council rules we have found there is no such policy and agencies defer to university policy. The decanal approval was to ensure the type of expenditure is appropriate for the type of grant funding; however, this is a duplication of effort as others in the approval chain are already reviewing the expense claim for this. For efficiency in process the dean's approval requirement has been removed. Research accounting will produce a high-level report for the Dean's office to review on a quarterly basis, hi-lighting new funds and any significant changes. Of note: any expense claim items research accounting is unsure is eligible, or requires interpretation of policies, rules, regulations; will be discussed with the Deans to ensure agreement on the interpretation of the expense item.



CONSULTATION:

This procedure was co-developed between the Finance and General Counsel's Office. The Policy Advisory Committee (PAC) reviewed and provided feedback on the procedure.

COMPLIANCE WITH POLICY/LEGISLATION:
These policy instruments comply with granting agencies and are required for audit purposes.

NEXT STEPS:

- Audit and Finance Committee – Procedure Approval (February 13, 2025)

SUPPORTING REFERENCE MATERIALS:

- Draft Signing Authority and Approval of Expenditures Procedure (Amendment)

Classification Number	LCG 1120.02
Parent policy	Contract Management and Signing Authority Policy
Framework Category	Legal, Compliance and Governance
Approving Authority	Audit and Finance Committee
Policy Owner	Vice-President, Administration
Approval Date	DRAFT FOR REVIEW
Review Date	April 2027
Supersedes	Signing Authority and Approval of Expenditures Procedure (April 11, 2024) Expenditure Signing Authority Procedures (June 16, 2021) and Legal Commitments Signing Authority Procedures (June 16, 2021) Expenditure Signing Authority Procedures amendment history: Substantive Amendment, Board approved December 1, 2022; Editorial Amendments, February 18, 2020; Interim Amendment Approved by Board of Governors, November 29, 2018; Signing Authority Registry and Approval Procedures, December 2008

.

Signing Authority and Approval of Expenditures Procedure

PURPOSE

1. The purpose of this Procedure is to establish the framework for delegation of Signing Authority to approve the Expenditure of university funds and to sign Contracts that bind the university to legal commitments. This procedure will establish a consistent university-wide framework to enable sound fiscal management and responsibility regarding university resources.

DEFINITIONS

2. For the purposes of these Procedures the following definitions apply:

"Budget Holder" means the individual(s) who are responsible for individual budgets at various departmental levels across the University.

"Budget Representative" means the individual(s) who are authorized by the Budget Holder to submit or approve expenses within an individual department level.

"Contract" means any document that establishes, or any other evidence of, an intention to establish a binding legal relationship between the University and one or more third parties.

"Expenditure" means all amounts disbursed from the University, including amounts pursuant to a Financial Contract.

"Contract Authority" means the individual(s) with direct or delegated authority to approve and sign a non-monetary commitment on behalf of the university in accordance with this Procedure. For Financial Contracts that include non-monetary commitments, the Signing Authority is the Contract Authority.

"Financial Contract" means any document, process or other evidence that records an intention to establish a monetary obligation between the University and one or more third parties (e.g. the procurement of goods and services through a purchase order, or a grant or gift agreement for incoming funds).

"Functional Approval Authority" means a member of SLT with delegated responsibility to review and approve Non-monetary Contracts and non-monetary commitments.

"Legal Review" means a review of a draft Contract by the University General Counsel or delegate to ensure that:

- The Requester and Signing Authority are made aware of the risks and obligations associated with a Contract prior to signing;
- The terms of the Contract will not subject the University to an unacceptable level of liability or risk; and
- The Contract does not contain unacceptable legal commitments.

"Non-monetary Contracts" means a Contract with no Value, such as an academic agreement, the establishment of a partnership or similar arrangement, or an employment agreement.

"Requester" means a responsible individual designated by a Signing Authority (normally a Budget Holder or Budget Representative) with authority to assess whether the Contract meets the objectives of the University, and ensure that the Contract complies with all University policies.

"Research Funds" means funds provided by a Sponsor, held in trust and administered by the University to pay for expenses incurred in support of research at the University, including:

- Internal Research Funds; and
- Funds awarded through external Sponsors.

"Responsible Unit" means the unit that must ensure that an official copy of the documentation supporting the Expenditure or Contract is retained in compliance with the University's Records Management Policy.

"Signing Authority" means the individual(s) with direct or delegated authority to approve a Contract in accordance with this Procedure and sign the agreement on behalf of the University.

"Settlement Agreement" means minutes of settlement, or an agreement involving or arising from legal action, litigation, insurance claims, grievances, employment matters, or matters in front of judicial or quasi-judicial tribunals.

"Sponsor" means the provider of funds for University activities, including both external and internal sources.

"University Brand" means any Intellectual Property elements that the university uses as part of its brand identity, including the use of the University's name and trademark or other brand assets.

"University Member" means any individual who is:

- Employed by the University or holding an appointment with the University, including paid, unpaid and/or honorific appointments (**"Employee"**);
- Registered as a Student; and/or
- Otherwise subject to University policies by virtue of the requirements of a specific policy (e.g. Booking and Use of University Space) and/or the terms of an agreement or contract.

"Value" means the total value of a Contract (cash and in-kind consideration) over the life of the contract in Canadian dollars.

SCOPE AND AUTHORITY

3. This Procedure applies to all Expenditures, Financial Contracts and Non-monetary Contracts, and extends to all University Members.

4. The Vice President, Administration or successor thereof, is the Policy Owner and is responsible for overseeing the implementation, administration and interpretation of this Policy, in consultation with the General Counsel, or successor thereof.

PROCEDURES

5. Source of funds for Expenditures

5.1. General Operating Funds and Capital Items

Publication of the operating budget, as approved by the Board of Governors of the University, confers authority upon Budget Holders to make Expenditures within the amounts and scope of the accounts allotted to them in the budget and in accordance with University policies and procedures.

Authorization is granted to the Budget Holder to expend or release funds. The Budget Holder must ensure that the Expenditures are necessary for university operations and are in compliance with university policies and procedures. Any in excess of the budgeted allocations that is not pre-approved by the relevant Dean/ VP becomes the responsibility of the Faculty/Department.

5.2. Research Funds

Authorization is granted to the Principal Investigator (PI) to expend or release Research Funds, subject to further approval by research accounting (or in the case of Research Funds managed by administrative staff, the administrative staff member's supervisor with sufficient approval level as set out in Appendix A.2.).

The PI must ensure that the Expenditures are required for, and are in compliance with, university policies and procedures in addition to any other externally imposed terms and conditions. Any Expenditure that may be deemed ineligible or inappropriate becomes the responsibility of the PI.

While PIs have authority to release Research Funds as noted above, they do not have authority to sign a Contract that binds the University.

6. Expenditure Submission and Internal Control Process

6.1. Approval of Expenditures, including expenditures pursuant to Financial Contracts requires a two-step approval process. This dual approval process exists to ensure sound financial management by segregating duties and is intended to

- Review compliance with university policies and procedures and, if applicable, Sponsor/donor terms and conditions.
- Ensure the appropriate supporting documentation is attached or available (on file, etc.)
- Confirm the authorization signature (signature verification).
- Ensure funds are available within the allocated budget amounts, and
- Verify correct account coding and ensure Expenditure commitment does not exceed project/grant end date (if applicable).

6.2. Appendix A sets out who can approve the Expenditure, based upon its Value. The Requester may be any Budget Representative assigned by the Budget Holder.

6.3. Purchase order invoices require one signature to acknowledge receipt of materials since the Expenditure has had dual approval through the procurement process.

7. Expenditure approval functions and responsibility

7.1. **STEP 1:** The Requester performs the following functions:

a) Assesses whether the Expenditure meets the objectives of the University,

b) Ensures that the Expenditure complies with all University policies, procedures and Sponsor/donor terms and conditions;

c) Ensures that sufficient funding exists, or will exist, to support the Expenditure; and

d) Confirms the authorization signature (signature verification).

7.2. **STEP 2:** The Signing Authority performs the following functions:

a) A review of the Requester's assessment as set out above.

b) Ensures that Expenditure is appropriate and necessary for University operations, and in the case of research that it is relevant.

c) Where a specific unit does not have an appropriate Requester, the review above may be provided by a Signing Authority and final approval by their one-over-one.

8. Approval of Financial Contracts

8.1. The approval of a Financial Contract requires a two-step approval process intended to:

a) Review compliance with university policies and procedures and, if applicable, Sponsor/donor terms and conditions.

b) Ensure the appropriate supporting documentation is attached or available (on file, etc.)

c) Confirm the authorization signature (signature verification).

d) Ensure funds are available within the allocated budget amounts, and

e) Verify correct account coding and ensure Expenditure commitment does not exceed project/grant end date (if applicable).

8.2. **STEP 1:** The Requester performs the following functions:

a) Assesses whether the Expenditure meets the objectives of the University,

b) Ensures that Legal Review has been completed (if applicable);

c) Ensures that all non-monetary commitments have been reviewed and approved by applicable Functional Approval Authorities set out in Appendix B;

d) Ensures that the Expenditure complies with all University policies, procedures and Sponsor/donor terms and conditions;

e) Ensures that sufficient funding exists, or will exist, to support the Expenditure; and

f) Confirms the authorization signature (signature verification).

8.3. **STEP 2:** The Signing Authority performs the following functions:

a) A review of the Requester's assessment as set out above.

b) Ensures that Expenditure is appropriate and necessary for University operations, and in the case of research that it is relevant.

c) Signing the Contract to bind the University.

8.4. Appendix A sets out who may act as the Signing Authority, based upon the value of the Contract. A Signing Authority will designate a Requester to conduct due diligence before a Contract is brought forward for approval.

8.5. Where a specific unit does not have an appropriate Requester, the review above may be provided by a Signing Authority and final approval by their one-over-one.

9. Approval of Non-Monetary Contracts

9.1. Where Contracts include only non-monetary commitments, such as academic agreements, the establishment of partnerships or similar arrangements, transfer or acquisition of intellectual property rights, employment agreements and non-disclosure agreements, they are subject to approval by, and will be signed on behalf

of the University by the Functional Approval Authority listed in Appendix B, or their delegate.

9.2. When a contract contains elements that require approval based both upon monetary value as well as non-monetary commitments, all approval requirements enclosed in the attached Appendices A and B must be satisfied, including that the contract must be executed by the Signing Authority indicated in Appendix A.

10. Delegation of Signing Authority and Functional Approval Authority

10.1. Budget Holders and Signing Authorities are permitted to temporarily delegate their signing authority to other individuals within their Faculty/Department. All Delegation of Authority must be in writing and retained in accordance with the Records Classification and Retention Schedule.

10.2. Functional Approval Authorities are permitted to temporarily delegate their signing authority to other individuals within their Faculty/Department. All Delegation of Authority must be in writing and retained in accordance with the Records Classification and Retention Schedule.

10.3. The delegate will provide the delegator with an executed copy of any and all documents signed under the written delegated authority. The delegator is responsible for agreements signed under their delegated authority.

10.4. Signing Authority for Research funds can only be delegated to individuals who have the ability to attest to the relevance of the Expenditure.

11. Contract Approval and Execution

11.1. The Signing Authority will approve the content of all Contracts prior to executing the Contract on behalf of the University.

MONITORING AND REVIEW

12. The Procedures and associated rates and schedules will be reviewed as necessary and at least every three years, and may be adjusted as required by University policies and broader regulatory requirements. The Vice-President, Administration is responsible to monitor and review this policy.

RELEVANT LEGISLATION

13. University of Ontario Institution of Technology Act, 2002, S.O. 2002, Chapter 8, Schedule O, as amended from time to time.

RELATED POLICIES, PROCEDURES & DOCUMENTS

14. Contract Management and Signing Authority Policy
Legal Review of Contracts Procedure
Policy on the Internal Use of Research Funds
Procurement Policy and Procedures
Expenses Policy and Procedures

Investment Policy
Gift Acceptance Policy
Policy on Senior Academic Administrative Appointments Policy
Associate Provost Appointment and Renewal Procedures
Provost and Vice-President, Academic Appointment and Renewal Procedures
Vice-President Responsible for Research Appointment and Renewal Procedures
Faculty Dean Appointment and Renewal Procedures
Dean of Graduate Studies Appointment and Renewal Procedures

Appendix A: Financial Contracts Signing Authority Registry

A.1 Board of Governors

The following Contracts require the signature of both the President and the Chair of the Board of Governors following approval by the Board of Governors:

1. Any Expenditure or Financial Contract with a face value in excess of $4 million outgoing or $10 million incoming,
2. Banking agreements (resolutions, capital borrowings, guarantees or credit facilities),
3. Appointment of external auditors,
4. Sale or acquisition of real property, including any major renovation or construction projects[i].

[i] Appointment of External Auditors, Banking agreements, and the Purchase or Sale of Real Property require, in addition to the above, require approval of the Vice-President, Administration.

A.2 Financial Contracts and Expenditures

Expenditures under $10,000

Expenditures that are not pursuant to a Contract with a Value equal to or less than $10,000 require only one approver, which can be any Budget Holder or Budget Representative.

Expenditures over $10,000 and Financial Contracts

The following table sets out the Signing Authority for various positions in the University. The table applies to Expenditures with a value greater than $10,000 and to Financial Contracts. Where the Value of a Contract is greater than Level 3, the Requester will be a Vice-President. For research Expenditures, see paragraph A.3. For Settlement Agreements, see A.4. For exceptions for contracts with incoming funds, see A.5.

Level	Position	Approval Level (Expenditure)	Approval Level (Incoming)
1	Manager, Associate Dean, Associate Registrar, or equivalent*	0-$100,000	0-$100,000
2	Director, Executive Director, AVP, Registrar, Dean, or equivalent*	0-$250,000	0-$250,000
3	Vice-President, Provost, General Counsel, or equivalent*	0-$2,000,000	0-$4,000,000
4	President	0-$4,000,000	0-$10,000,000

*equivalency of positions will be determined based on the level of authority of a position within the university, regardless of title, guided by the assessed job evaluation of a given position. A determination will be made by the Policy Owner, or delegate, in consultation with Human Resources.

A.3 Research – Expenditure of Research Funds

All Expenditures and Contracts funded by Research Funds (i.e. research funds from external or internal sources) require approval by the fund-holder or Principal Investigator and for Expenditures up to $10,000, research accounting. All Expenditures or Contracts will be within the budget of the particular research fund. Where an Expenditure exceeds $10,000, the Signing Authority is determined according to the table below.

Position	Approval Level
Research Accounting	Up to $10,000
Dean	$10,000-$250,000
Vice-President, Research and Innovation	$250,000-$2,000,000
President	$2,000,000-$4,000,000

A.4 Settlement Agreements

All Settlement Agreements will be reviewed by General Counsel, or delegate before approval. Where the review of the Settlement Agreement indicates that the agreement presents a substantial risk to the University that cannot be mitigated through revision or negotiation, additional approval will be required from the President or Board of Governors. Otherwise the following approval authorities apply:

Position	Approval Level
General Counsel	Up to $2M
President	$2M to $4M
Board of Governors, in accordance with section A.2	$4M or greater

A.5 Contracts that include incoming funds

The following tables set out specific types of Contracts that include incoming funds where specific approval authorities exist that are exceptions to the table in A.2 above.

1. Government Transfer Payment Agreements

Position	Approval Level
President	Any Value
Determined by Signing Authority set out in A.2	Between $0 and $4M

2. Gift Agreements

The Vice-President, Advancement will be the Requester if the value exceeds $4M.

Position	**Approval Level**
Vice-President, Advancement (or designate)	Up to $4M
President (Second Approver)	Between $4M and $10M
Board of Governors (Second Approver)	Greater than $10M

3. Research: Applications and proposals for incoming research funding

Position	Approval Level
Vice-President, Research and Innovation	Any Value
Executive Director, Office of Research Services	Up to $1M

Any research agreements that result from applications and proposals for incoming research funding will be subject to approval by the Vice-President, Research and Innovation or by their delegate with sufficient authority for the Value as set out in A.2 above. Agreements with a Value exceeding the Vice-President, Research's approval level under section A.2 will be approved in accordance with section A.2.

Appendix B: Non-Monetary Signing Authority Registry

B.1 Functional Approval Authority for Non-Monetary Contracts

This section addresses non-monetary commitments that may form part of Contracts. These commitments may form part of Financial Contracts, or the Value of the Contract may be nominal, or non-existent. Functional Approval Authorities have delegated responsibility for approving contracts that fall within their area of assigned responsibility, subject to the Value thresholds set out in Appendix A. Functional Approval Authorities may establish administrative processes to follow when seeking approval for Contracts in their area of responsibility. These processes may include a written delegation of authority for functional approval.

1. Academic Agreements

Type of Contract	**Functional Approval Authority**
Articulation agreements, educational partnerships and international agreements	Provost and Vice-President, Academic
Inter-institutional collaboration agreements, including work-integrated learning (co-op, internships, practicum, service learning)	Provost and Vice-President, Academic
Inter-institutional research collaboration agreements	Vice-President, Research and Innovation
Non-degree programs or courses	Approved in accordance with the applicable policy
Mobility Exchanges	Provost and Vice-President, Academic
Course Capstones	Deans

2. Employment Agreements

Type of Contract	**Functional Approval Authority**
Collective agreement mandates	Governance, Nominations and Human Resources Committee of the Board in accordance with the committee's Terms of Reference.
Collective agreements	University's bargaining team, as delegated by GNHR in accordance with the committee's Terms of Reference.
President (hiring and related contracts)	Chair of the Board of Governors

Senior Executive (hiring and related contracts) (e.g. Vice-President, Dean)[1]	President
Positions in the approved budget	At a minimum the position's manager

3. Intellectual Property

Type of Contract	**Functional Approval Authority**
Licensing commercially available intellectual property	Governed by the table in A.2
Standalone teaching and learning intellectual property agreements	Provost and Vice-President, Academic
Research funding or partnership agreements that grant non-standard IP rights	Vice-President, Research and Innovation
Granting a license to university Branding elements	President
Licensing of IP that is not commercially available or granting a license to University-owned IP	Responsible Vice-President

4. Legal and Privacy

Type of Contract	**Functional Approval Authority**
Regulatory Licenses (for example, the sale of liquor)	Applicable Executive Compliance Lead under the Compliance Policy
Release of confidential records, documents or information	Chief Privacy Officer, or delegate, in accordance with the University's Access to Information and Privacy Policy.
Non-disclosure agreements (research context)	Vice-President, Research and Innovation, or delegate
Non-disclosure agreements (other than research)	General Counsel, or delegate

[1] Appointment of Senior Academic Positions will be done in accordance with the Policy on Senior Academic Administrative Appointments and applicable procedure.

Classification Number	LCG 1120.02
Parent policy	Contract Management and Signing Authority Policy
Framework Category	Legal, Compliance and Governance
Approving Authority	Audit and Finance Committee
Policy Owner	Vice-President, Administration
Approval Date	DRAFT FOR REVIEW
Review Date	April 2027
Supersedes	Signing Authority and Approval of Expenditures Procedure (April 11, 2024) Expenditure Signing Authority Procedures (June 16, 2021) and Legal Commitments Signing Authority Procedures (June 16, 2021) Expenditure Signing Authority Procedures amendment history: Substantive Amendment, Board approved December 1, 2022; Editorial Amendments, February 18, 2020; Interim Amendment Approved by Board of Governors, November 29, 2018; Signing Authority Registry and Approval Procedures, December 2008

.

Signing Authority and Approval of Expenditures Procedure

PURPOSE

1. The purpose of this Procedure is to establish the framework for delegation of Signing Authority to approve the Expenditure of university funds and to sign Contracts that bind the university to legal commitments. This procedure will establish a consistent university-wide framework to enable sound fiscal management and responsibility regarding university resources.

DEFINITIONS

2. For the purposes of these Procedures the following definitions apply:

"Budget Holder" means the individual(s) who are responsible for individual budgets at various departmental levels across the University.

"Budget Representative" means the individual(s) who are authorized by the Budget Holder to submit or approve expenses within an individual department level.

"Contract" means any document that establishes, or any other evidence of, an intention to establish a binding legal relationship between the University and one or more third parties.

"Expenditure" means all amounts disbursed from the University, including amounts pursuant to a Financial Contract.

"Contract Authority" means the individual(s) with direct or delegated authority to approve and sign a non-monetary commitment on behalf of the university in accordance with this Procedure. For Financial Contracts that include non-monetary commitments, the Signing Authority is the Contract Authority.

"Financial Contract" means any document, process or other evidence that records an intention to establish a monetary obligation between the University and one or more third parties (e.g. the procurement of goods and services through a purchase order, or a grant or gift agreement for incoming funds).

"Functional Approval Authority" means a member of SLT with delegated responsibility to review and approve Non-monetary Contracts and non-monetary commitments.

"Legal Review" means a review of a draft Contract by the University General Counsel or delegate to ensure that:

- The Requester and Signing Authority are made aware of the risks and obligations associated with a Contract prior to signing;
- The terms of the Contract will not subject the University to an unacceptable level of liability or risk; and
- The Contract does not contain unacceptable legal commitments.

"Non-monetary Contracts" means a Contract with no Value, such as an academic agreement, the establishment of a partnership or similar arrangement, or an employment agreement.

"Requester" means a responsible individual designated by a Signing Authority (normally a Budget Holder or Budget Representative) with authority to assess whether the Contract meets the objectives of the University, and ensure that the Contract complies with all University policies.

"Research Funds" means funds provided by a Sponsor, held in trust and administered by the University to pay for expenses incurred in support of research at the University, including:

- Internal Research Funds; and
- Funds awarded through external Sponsors.

"Responsible Unit" means the unit that must ensure that an official copy of the documentation supporting the Expenditure or Contract is retained in compliance with the University's Records Management Policy.

"Signing Authority" means the individual(s) with direct or delegated authority to approve a Contract in accordance with this Procedure and sign the agreement on behalf of the University.

"Settlement Agreement" means minutes of settlement, or an agreement involving or arising from legal action, litigation, insurance claims, grievances, employment matters, or matters in front of judicial or quasi-judicial tribunals.

"Sponsor" means the provider of funds for University activities, including both external and internal sources.

"University Brand" means any Intellectual Property elements that the university uses as part of its brand identity, including the use of the University's name and trademark or other brand assets.

"University Member" means any individual who is:

- Employed by the University or holding an appointment with the University, including paid, unpaid and/or honorific appointments (**"Employee"**);
- Registered as a Student; and/or
- Otherwise subject to University policies by virtue of the requirements of a specific policy (e.g. Booking and Use of University Space) and/or the terms of an agreement or contract.

"Value" means the total value of a Contract (cash and in-kind consideration) over the life of the contract in Canadian dollars.

SCOPE AND AUTHORITY

3. This Procedure applies to all Expenditures, Financial Contracts and Non-monetary Contracts, and extends to all University Members.

4. The Vice President, Administration or successor thereof, is the Policy Owner and is responsible for overseeing the implementation, administration and interpretation of this Policy, in consultation with the General Counsel, or successor thereof.

PROCEDURES

5. Source of funds for Expenditures

5.1. General Operating Funds and Capital Items

Publication of the operating budget, as approved by the Board of Governors of the University, confers authority upon Budget Holders to make Expenditures within the amounts and scope of the accounts allotted to them in the budget and in accordance with University policies and procedures.

Authorization is granted to the Budget Holder to expend or release funds. The Budget Holder must ensure that the Expenditures are necessary for university operations and are in compliance with university policies and procedures. Any in excess of the budgeted allocations that is not pre-approved by the relevant Dean/ VP becomes the responsibility of the Faculty/Department.

5.2. Research Funds

Authorization is granted to the Principal Investigator (PI) to expend or release Research Funds, subject to further approval by research accounting (or in the case of Research Funds managed by administrative staff, the administrative staff member's supervisor with sufficient approval level as set out in Appendix A.2.).

Deleted: their Dean

The PI must ensure that the Expenditures are required for, and are in compliance with, university policies and procedures in addition to any other externally imposed terms and conditions. Any Expenditure that may be deemed ineligible or inappropriate becomes the responsibility of the PI.

While PIs have authority to release Research Funds as noted above, they do not have authority to sign a Contract that binds the University.

6. Expenditure Submission and Internal Control Process

6.1. Approval of Expenditures, including expenditures pursuant to Financial Contracts requires a two-step approval process. This dual approval process exists to ensure sound financial management by segregating duties and is intended to

- Review compliance with university policies and procedures and, if applicable, Sponsor/donor terms and conditions.
- Ensure the appropriate supporting documentation is attached or available (on file, etc.)
- Confirm the authorization signature (signature verification).
- Ensure funds are available within the allocated budget amounts, and
- Verify correct account coding and ensure Expenditure commitment does not exceed project/grant end date (if applicable).

6.2. Appendix A sets out who can approve the Expenditure, based upon its Value. The Requester may be any Budget Representative assigned by the Budget Holder.

6.3. Purchase order invoices require one signature to acknowledge receipt of materials since the Expenditure has had dual approval through the procurement process.

7. Expenditure approval functions and responsibility

7.1. **STEP 1:** The Requester performs the following functions:

a) Assesses whether the Expenditure meets the objectives of the University,

b) Ensures that the Expenditure complies with all University policies, procedures and Sponsor/donor terms and conditions;

c) Ensures that sufficient funding exists, or will exist, to support the Expenditure; and

d) Confirms the authorization signature (signature verification).

7.2. **STEP 2:** The Signing Authority performs the following functions:

a) A review of the Requester's assessment as set out above.

b) Ensures that Expenditure is appropriate and necessary for University operations, and in the case of research that it is relevant.

c) Where a specific unit does not have an appropriate Requester, the review above may be provided by a Signing Authority and final approval by their one-over-one.

8. Approval of Financial Contracts

8.1. The approval of a Financial Contract requires a two-step approval process intended to:

a) Review compliance with university policies and procedures and, if applicable, Sponsor/donor terms and conditions.

b) Ensure the appropriate supporting documentation is attached or available (on file, etc.)

c) Confirm the authorization signature (signature verification).

d) Ensure funds are available within the allocated budget amounts, and

e) Verify correct account coding and ensure Expenditure commitment does not exceed project/grant end date (if applicable).

8.2. **STEP 1:** The Requester performs the following functions:

a) Assesses whether the Expenditure meets the objectives of the University,

b) Ensures that Legal Review has been completed (if applicable);

c) Ensures that all non-monetary commitments have been reviewed and approved by applicable Functional Approval Authorities set out in Appendix B;

d) Ensures that the Expenditure complies with all University policies, procedures and Sponsor/donor terms and conditions;

e) Ensures that sufficient funding exists, or will exist, to support the Expenditure; and

f) Confirms the authorization signature (signature verification).

8.3. **STEP 2:** The Signing Authority performs the following functions:

a) A review of the Requester's assessment as set out above.

b) Ensures that Expenditure is appropriate and necessary for University operations, and in the case of research that it is relevant.

c) Signing the Contract to bind the University.

8.4. Appendix A sets out who may act as the Signing Authority, based upon the value of the Contract. A Signing Authority will designate a Requester to conduct due diligence before a Contract is brought forward for approval.

8.5. Where a specific unit does not have an appropriate Requester, the review above may be provided by a Signing Authority and final approval by their one-over-one.

9. Approval of Non-Monetary Contracts

9.1. Where Contracts include only non-monetary commitments, such as academic agreements, the establishment of partnerships or similar arrangements, transfer or acquisition of intellectual property rights, employment agreements and non-disclosure agreements, they are subject to approval by, and will be signed on behalf

of the University by the Functional Approval Authority listed in Appendix B, or their delegate.

9.2. When a contract contains elements that require approval based both upon monetary value as well as non-monetary commitments, all approval requirements enclosed in the attached Appendices A and B must be satisfied, including that the contract must be executed by the Signing Authority indicated in Appendix A.

10. Delegation of Signing Authority and Functional Approval Authority

10.1. Budget Holders and Signing Authorities are permitted to temporarily delegate their signing authority to other individuals within their Faculty/Department. All Delegation of Authority must be in writing and retained in accordance with the Records Classification and Retention Schedule.

10.2. Functional Approval Authorities are permitted to temporarily delegate their signing authority to other individuals within their Faculty/Department. All Delegation of Authority must be in writing and retained in accordance with the Records Classification and Retention Schedule.

10.3. The delegate will provide the delegator with an executed copy of any and all documents signed under the written delegated authority. The delegator is responsible for agreements signed under their delegated authority.

10.4. Signing Authority for Research funds can only be delegated to individuals who have the ability to attest to the relevance of the Expenditure.

11. Contract Approval and Execution

11.1. The Signing Authority will approve the content of all Contracts prior to executing the Contract on behalf of the University.

MONITORING AND REVIEW

12. The Procedures and associated rates and schedules will be reviewed as necessary and at least every three years, and may be adjusted as required by University policies and broader regulatory requirements. The Vice-President, Administration is responsible to monitor and review this policy.

RELEVANT LEGISLATION

13. University of Ontario Institution of Technology Act, 2002, S.O. 2002, Chapter 8, Schedule O, as amended from time to time.

RELATED POLICIES, PROCEDURES & DOCUMENTS

14. Contract Management and Signing Authority Policy
Legal Review of Contracts Procedure
Policy on the Internal Use of Research Funds
Procurement Policy and Procedures
Expenses Policy and Procedures

Investment Policy
Gift Acceptance Policy
Policy on Senior Academic Administrative Appointments Policy
Associate Provost Appointment and Renewal Procedures
Provost and Vice-President, Academic Appointment and Renewal Procedures
Vice-President Responsible for Research Appointment and Renewal Procedures
Faculty Dean Appointment and Renewal Procedures
Dean of Graduate Studies Appointment and Renewal Procedures

Appendix A: Financial Contracts Signing Authority Registry

A.1 Board of Governors

The following Contracts require the signature of both the President and the Chair of the Board of Governors following approval by the Board of Governors:

1. Any Expenditure or Financial Contract with a face value in excess of $4 million outgoing or $10 million incoming,
2. Banking agreements (resolutions, capital borrowings, guarantees or credit facilities),
3. Appointment of external auditors,
4. Sale or acquisition of real property, including any major renovation or construction projects[i].

[i] Appointment of External Auditors, Banking agreements, and the Purchase or Sale of Real Property require, in addition to the above, require approval of the Vice-President, Administration.

A.2 Financial Contracts and Expenditures

Expenditures under $10,000

Expenditures that are not pursuant to a Contract with a Value equal to or less than $10,000 require only one approver, which can be any Budget Holder or Budget Representative.

Expenditures over $10,000 and Financial Contracts

The following table sets out the Signing Authority for various positions in the University. The table applies to Expenditures with a value greater than $10,000 and to Financial Contracts. Where the Value of a Contract is greater than Level 3, the Requester will be a Vice-President. For research Expenditures, see paragraph A.3. For Settlement Agreements, see A.4. For exceptions for contracts with incoming funds, see A.5.

Level	Position	Approval Level (Expenditure)	Approval Level (Incoming)
1	Manager, Associate Dean, Associate Registrar, or equivalent*	0-$100,000	0-$100,000
2	Director, Executive Director, AVP, Registrar, Dean, or equivalent*	0-$250,000	0-$250,000
3	Vice-President, Provost, General Counsel, or equivalent*	0-$2,000,000	0-$4,000,000
4	President	0-$4,000,000	0-$10,000,000

*equivalency of positions will be determined based on the level of authority of a position within the university, regardless of title, guided by the assessed job evaluation of a given position. A determination will be made by the Policy Owner, or delegate, in consultation with Human Resources.

A.3 Research – Expenditure of Research Funds

All Expenditures and Contracts funded by Research Funds (i.e. research funds from external or internal sources) require approval by the fund-holder or Principal Investigator and for Expenditures up to $10,000, research accounting. All Expenditures or Contracts will be within the budget of the particular research fund. Where an Expenditure exceeds $10,000, the Signing Authority is determined according to the table below.

Position	Approval Level
Research Accounting	Up to $10,000
Dean	$10,000-$250,000
Vice-President, Research and Innovation	$250,000-$2,000,000
President	$2,000,000-$4,000,000

Deleted: ,

Deleted: their Dean. For the purposes of this Procedure, the Principle Investigator serves as the Requester and the Dean as the Signing Authority.

Deleted: the

Deleted: expenditure

Deleted: exceeds

Deleted: the Dean's authority

Formatted: Font: Not Bold

A.4 Settlement Agreements

All Settlement Agreements will be reviewed by General Counsel, or delegate before approval. Where the review of the Settlement Agreement indicates that the agreement presents a substantial risk to the University that cannot be mitigated through revision or negotiation, additional approval will be required from the President or Board of Governors. Otherwise the following approval authorities apply:

Position	Approval Level
General Counsel	Up to $2M
President	$2M to $4M
Board of Governors, in accordance with section A.2	$4M or greater

A.5 Contracts that include incoming funds

The following tables set out specific types of Contracts that include incoming funds where specific approval authorities exist that are exceptions to the table in A.2 above.

1. Government Transfer Payment Agreements

Position	Approval Level
President	Any Value
Determined by Signing Authority set out in A.2	Between $0 and $4M

2. Gift Agreements

The Vice-President, Advancement will be the Requester if the value exceeds $4M.

Position	**Approval Level**
Vice-President, Advancement (or designate)	Up to $4M
President (Second Approver)	Between $4M and $10M
Board of Governors (Second Approver)	Greater than $10M

3. Research: Applications and proposals for incoming research funding

Position	Approval Level
Vice-President, Research and Innovation	Any Value
Executive Director, Office of Research Services	Up to $1M

Any research agreements that result from applications and proposals for incoming research funding will be subject to approval by the Vice-President, Research and Innovation or by their delegate with sufficient authority for the Value as set out in A.2 above. Agreements with a Value exceeding the Vice-President, Research's approval level under section A.2 will be approved in accordance with section A.2.

Appendix B: Non-Monetary Signing Authority Registry

B.1 Functional Approval Authority for Non-Monetary Contracts

This section addresses non-monetary commitments that may form part of Contracts. These commitments may form part of Financial Contracts, or the Value of the Contract may be nominal, or non-existent. Functional Approval Authorities have delegated responsibility for approving contracts that fall within their area of assigned responsibility, subject to the Value thresholds set out in Appendix A. Functional Approval Authorities may establish administrative processes to follow when seeking approval for Contracts in their area of responsibility. These processes may include a written delegation of authority for functional approval.

1. Academic Agreements

Type of Contract	**Functional Approval Authority**
Articulation agreements, educational partnerships and international agreements	Provost and Vice-President, Academic
Inter-institutional collaboration agreements, including work-integrated learning (co-op, internships, practicum, service learning)	Provost and Vice-President, Academic
Inter-institutional research collaboration agreements	Vice-President, Research and Innovation
Non-degree programs or courses	Approved in accordance with the applicable policy
Mobility Exchanges	Provost and Vice-President, Academic
Course Capstones	Deans

2. Employment Agreements

Type of Contract	**Functional Approval Authority**
Collective agreement mandates	Governance, Nominations and Human Resources Committee of the Board in accordance with the committee's Terms of Reference.
Collective agreements	University's bargaining team, as delegated by GNHR in accordance with the committee's Terms of Reference.
President (hiring and related contracts)	Chair of the Board of Governors

Senior Executive (hiring and related contracts) (e.g. Vice-President, Dean)[1]	President
Positions in the approved budget	At a minimum the position's manager

3. Intellectual Property

Type of Contract	**Functional Approval Authority**
Licensing commercially available intellectual property	Governed by the table in A.2
Standalone teaching and learning intellectual property agreements	Provost and Vice-President, Academic
Research funding or partnership agreements that grant non-standard IP rights	Vice-President, Research and Innovation
Granting a license to university Branding elements	President
Licensing of IP that is not commercially available or granting a license to University-owned IP	Responsible Vice-President

4. Legal and Privacy

Type of Contract	**Functional Approval Authority**
Regulatory Licenses (for example, the sale of liquor)	Applicable Executive Compliance Lead under the Compliance Policy
Release of confidential records, documents or information	Chief Privacy Officer, or delegate, in accordance with the University's Access to Information and Privacy Policy.
Non-disclosure agreements (research context)	Vice-President, Research and Innovation, or delegate
Non-disclosure agreements (other than research)	General Counsel, or delegate

[1] Appointment of Senior Academic Positions will be done in accordance with the Policy on Senior Academic Administrative Appointments and applicable procedure.

ACADEMIC COUNCIL
Minutes of the Meeting of November 26, 2024
2:31 – 4:25 p.m. videoconference

Present:

Steven Murphy (Chair)
Asifa Aamir
JoAnne Arcand
Robert Bailey
Ahmad Barari
Mary Bluechardt
Toba Bryant
Amanda Cooper
Nicola Crow
Catherine Davidson
Ana Duff
Mikael Eklund
Nawal Elshamiy
Shanti Fernando
Jessica Hogue
Mehdi Hossein Nejad
Brenda Jacobs
Les Jacobs
Hossam Kishawy
Lori Livingston
Breanne Mcalpin
Janet McCabe
Carolyn McGregor
Fedor Naumkin
Scott Nokleby
Carol Rodgers
Robyn Ruttenberg-Rozen
Denina Simmons
Gillian Slade
Peter Stoett
Joe Stokes
Jemma Tam
Dwight Thompson
Oghenetega (Tega) Ubor
Shannon Vettor
Ken Wilson

Staff & Guests:

Kirstie Ayotte (Secretary)
Chelsea Bauer
Jamie Bruno
Stephanie Callahan
Mitch Fraser
Krista Hester
Andrea Kassaris
Peter Lewis
Clarissa Livingston
Jennifer MacInnis
Brad MacIsaac
Kimberley McCartney
Christine McLaughlin
Amy Neill
Niall O'Halloran
Melissa Ramirez
Jen Rinaldi
Sarah Thrush
Lisa Townsend
Shelly Windsor

Regrets:

Scott Aquanno
Wendy Barber
Mihai Beligan
Krystina Clarke
Sayyeed Ali Hossseini

1. **Call to Order**
The Chair called the meeting to order at 2:31 p.m. R. Ruttenberg-Rozen began with a thoughtful Land Acknowledgement, sharing her personal reflection and then reading the University's Land Acknowledgement.

2. **Agenda**
A member requested to add to Item 10. Policy Consultation.

Upon a motion duly made by R. Bailey and seconded by M. Hossein Nejad, the November 26, 2024 Agenda and the Consent Agenda were approved as amended.

3. **Chair's Remarks**
The Chair reflected on the semester's accomplishments, commending the faculty, staff, and students for their dedication. He highlighted Pierre Cote's Lab's designation as a World Health Organization (WHO) Collaborating Centre for Rehabilitation Research, a milestone for the University and Canadian research. The Chair also celebrated the Men's soccer team's success winning the Ontario University Athletics (OUA) title and the University hosting the National Championship.

Addressing challenges, the Chair emphasized the need for universities to align with government priorities in areas like education, healthcare, and energy to enhance public trust and secure funding, urging Academic Council members to focus on demonstrating the University's relevance and impact.

4. **Inquiries and Communications**
a) COU Academic Colleague Report
M. Eklund summarized key updates from the Council of Ontario Universities (COU) meetings. Topics included an escalating advocacy strategy focused on highlighting Universities' role in workforce development, job readiness, and economic growth. He also discussed SMA4 negotiations and challenges with international student permit caps, noting potential impacts on enrollment and institutional funding.

5. **Provost's Remarks**
L. Livingston shared that the University applied for and successfully received the full $500,000 from the one-time provincial Efficiency and Accountability Fund (EAF), aimed at addressing financial challenges in higher education. She noted that the funds are designated for process reviews to identify cost-saving measures and improve outcomes for students and the community, and that the funds must be used as specified, with no discretion in their allocation.

a) Senior Academic Administrator Search Update
L. Livingston provided updates on the Senior Academic Administrator searches and renewals. She reminded members that Dean Carol Rodgers has requested a second

term, and that the membership of the Renewal Advisory Committee was announced the previous week. Additionally, she reported that the search for a new Dean of the School of Graduate and Postdoctoral Studies is progressing, with the call for committee members now closed and membership being finalized. Both processes are expected to move forward in the New Year.

L. Livingston re-confirmed that the Dean of Engineering and Applied Science renewal, and the Deputy Provost search have concluded, and recommendations are being forwarded to the Board for approval later this week.

In response to a question about conditions associated with the EAF, B. MacIsaac clarified that there are no written requirements from the Ministry and emphasized that the funding is a one-time grant intended solely for conducting reviews. He explained that institutions will need to use their own operating budgets to implement any recommendations. Although there are no specific conditions, the reports will be reviewed by the University's Board and submitted to the Ministry, which may reference them in the future. He confirmed that the review process, which began in November with the first report due by December 2024, will gather feedback from all levels of the University, focusing on those directly involved in the processes identified for review.

b) Strategic Mandate Agreement (SMA4) Update

S. Thrush provided an update on the transition to SMA4, covering the five-year period from April 2025 to March 2030. She advised that bilateral negotiations begin next week, with the government prioritizing student and graduate outcomes and community and economic impacts. She noted that SMA4 metrics have been reduced from 10 to 8, with six carried over from SMA3 and two to be selected based on the University's strengths. STEM programs are a key focus, with the Ministry requesting details on enrollment projections, program costs, labour market demands, and barriers to growth. She emphasized that the University's high proportion of STEM programs and it's alignment with these priorities will be leveraged to advocate for necessary investments. She also outlined other considerations within SMA4, like enrollment corridors and accountability, with 5% of funding tied to transparency and efficiency metrics. Although no base growth is planned for years one and two within SMA4, input will be sought for years three to five. Despite limited room for negotiation, the University aims to align with Ministry priorities, emphasizing regional needs, STEM programs, and its tech with a conscience focus. Further details on metrics are expected in January alongside SMA3 reporting.

In response to a question on the community engagement priority, S. Thrush explained that while it is tied to economic outcomes, it cannot currently be captured in SMA metrics due to the requirement for three years of data. She suggested that community engagement could be considered for institutional metrics outside the SMA framework and emphasized that the SMA metrics focus on stabilizing and securing funding rather than fully reflecting the University's identity and values.

6. 2025-2026 Budget Approach*

B. MacIsaac outlined the University's financial outlook, with a projected $15 million revenue increase to $260 million next year, driven mainly by higher enrollment. He discussed a $900 million provincial investment in post-secondary education, with Ontario Tech receiving additional revenue of $1.6 million this year, rising to $2.8 million next year, but with no guarantee beyond three years. Domestic tuition rates have been frozen since 2019, and an assumed increase of 3% , compared to 5% in the past few years, in international tuition has been built into the draft budget due to higher competition and concerns about Canada being perceived as "closed."

S. Thrush presented the 2025-2026 budget plan, highlighting moderate domestic growth of 1.5-1.75% in uncapped programs and growth in graduate research and course-based masters. However, international enrollment remains uncertain due to a lack of information on how federal caps will be applied, particularly for graduate students. She noted that for international undergraduates, the cap is expected to be met in 2025, with a 5% intake increase planned for future years.

The plan emphasizes retention and persistence, using a three-year average for projections. Scenarios included the budget scenario as presented, a "frozen" case with no growth in international enrollment and a growth scenariotargeting a 10% annual increase to reach 18,000 students. The outlook is cautiously optimistic, with uncertainties about international enrollment and policy changes. She noted that further information would be provided once available.

B. MacIsaac presented the budget's expenses, noting a $12.5 million increase in labour costs due to salary increases and new hires to support enrollment growth. He mentioned that revenue is expected to exceed expenses by $8 million, but uncertainties surrounding international student caps could reduce the projected budget by about $3.5 million. A further $3 million should be set aside for future or unexpected expenses, such as potential capital projects and unanticipated operational challenges.

He emphasized the University's reliance on enrolment growth with government funding and domestic tuition frozen . Overall revenue growth is projected at 1.5%, driven by increased enrollment, while labour costs, which account for 66% of the budget, will rise by 6%. He noted that the University's differentiated growth strategy has been key in maintaining a balanced budget and positioning the University ahead of others.

L. Livingston discussed the current uncertain environment, highlighting external factors that the University has experienced over the past few years such as the COVID-19 pandemic, historic inflation, and now government restrictions on international students, frozen tuition fees, and geopolitical conflicts. She emphasized that these factors are beyond the University's control, creating unprecedented levels of uncertainty. She noted that despite these challenges, the focus remains on mitigating the impacts through advocacy, fundraising, and a commitment to the University's differentiated growth agenda, which includes expanding existing credit

and non-credit programs to attract more students and ensuring the retention of current students. She expressed gratitude to Deans, faculty, and staff for their efforts in developing new programs and supporting enrollment growth.

In response to a question, S. Thrush explained that differentiated growth may not suit all institutions, but Ontario Tech is well-positioned due to its alignment with government priorities. She noted that the University is balancing undergraduate and graduate growth, focusing on expanding masters' programs to generate additional revenue and emphasized the importance of meeting regional demands in STEM, health, education, and applied programs while monitoring program balance and development within funding constraints.

J. Stokes addressed concerns regarding attestation letters and advised that the University currently has enough letters for its undergraduate programs, though there is a risk due to shrinking applicant pools. On the graduate side, the situation is uncertain, as the Provincial government has not yet received the Federal allocation for graduate students, making it difficult to predict future impacts.

B. MacIsaac highlighted the need for physical expansion, with the University operating at 71% of required space standards. Growth will require new buildings, which are a focus of the $250 million capital campaign. Addressing recent capital commitments, including loans for Shawenjigewining Hall and a purchased building, he explained that the idea for reserves now includes operating flexibility due to uncertainty. He also noted the cost-saving purchase of the Campus Corners building, supported by a $5 million donation, reduces annual expenses by $300,000 and adds an asset to the University's portfolio.

7. **Undergraduate Studies Committee (USC)**
M. Bluechardt noted no actionable items for Academic Council. She advised that the October USC meeting included the expedited approval of the new BA in Sociology and Tech Innovation program, which was recommended at last month's Academic Council meeting and will go to the Board of Governors for final approval. Additionally, revisions to the 2024-25 Undergraduate Academic Schedule and minor curricular changes were reviewed.

8. **Graduate Studies Committee (GSC)**
J. Stokes highlighted a successful internal recruitment event for undergraduates considering graduate school and discussions on adapting student recruitment to international changes. He advised that Associate Deans are working with Graduate Program Directors to explore ways to increase domestic graduate enrollment.

   a) **New Program Proposal – Faculty of Business and IT (FBIT); Doctor of Philosophy-Cybersecurity* (M)**
   J. Stokes presented the new program proposal being recommended for approval from GSC. In response to a question regarding resources for this new proposed program,

C. McGregor clarified that no additional resources are needed as a tenure-track faculty member in cybersecurity has already been hired. She noted that this hire supports both the new program and existing programs, including the Master of IT Security (MITs) and bachelor's cybersecurity courses.

Motion:
Upon a motion duly made by J. Stokes and seconded by K. Wilson, pursuant to the recommendation of the Graduate Studies Committee, Academic Council hereby approves the Doctor of Philosophy – Cybersecurity program and recommends approval of the program to the Board of Governors.

9. Research Committee

L. Jacobs thanked faculty and staff for their feedback on the Strategic Research Plan, noting that a written version will be ready by late January. He highlighted recent events, including the Women in STEM event, the Research Excellence Award ceremony, and the WHO Rehabilitation Research collaboration. He announced that the University has been named Research University of the Year for Smaller Universities by Infosource for the second year in a row and mentioned the approval of three new research entities, two of which will be presented at the next Academic Council meeting.

a) New Research Institute – Mindful AI Research Institute* (M)

L. Jacobs presented the Mindful AI Research Institute, a pan-university initiative led by Dr. Peter Lewis, and includes representation from all Faculties. He highlighted that over the past month, fifty faculty members expressed interest in aligning their research agendas with the Institute. He advised that AI-related research accounts for 8% of the University's publications, with a 150% growth in AI publications over the last five years, ranking the University second in the country among smaller Universities for AI publications. He noted that the Institute aims to consolidate AI research and innovation, focusing on themes such as self-awareness, social intelligence, responsible development, and the social impact of AI and that its vision aligns with the University's principles of tech with a conscience, and addresses the challenge of low-energy AI systems.

L. Jacobs confirmed that the Institute meets governance policies and procedures, as it involves faculty from multiple Faculties and significant external, diverse partnerships, including government, nonprofit, and business sectors. He highlighted formal collaborations with organizations like Lakeridge Health and the Vector Institute, ensuring compliance with the University's governance standards for establishing research institutes.

Motion:
Upon a motion duly made by D. Thompson, and seconded by A. Cooper, pursuant to the recommendation of the Research Committee, Academic Council hereby recommends the Establishment of Mindful Artificial Intelligence Research Institute (MAIRI) Centre for approval by the Board of Governors, as presented.

10. Policy Consultation

The Chair acknowledged a member's request to review how policy feedback is presented to Academic Council, noting that there were no policies for face-to-face consultation at this meeting. The policy instruments listed on the agenda were only provided for informational purposes regarding written consultation.

N. O'Halloran explained the policy consultation process, noting that the framework outlines different paths for consultation and approval depending on the type of policy. For legal compliance and governance guidelines, the consultation is done through written comments, with no report-back mechanism to those who provide feedback. Comments are reviewed by the approval authority.

J. MacInnis confirmed that as per the policy framework the President is the final approval authority for the two policy instruments noted for written consultation. A report will be prepared for the President which will include the feedback obtained during the consultation process. J. MacInnis also noted that the subject policy instruments are in response to government directives received by the University.

*To note: The guidelines are incorrectly entitled Anti-Indigenous Racism, Anti-Black Racism Guidelines under the Agenda as presented.

11. Consent Agenda

The Chair confirmed that the Consent Agenda and the items in the Consent Agenda were approved and received in the approval of the Agenda at the start of the meeting.

a) Minutes of the Meeting of October 22, 2024* (M)
b) Conferral of Fall 2024 Degrees* (M)

12. Other Business

a) J. Stokes volunteered to provide the Land Acknowledgement for the January 2025 Academic Council meeting.

13. Termination

Upon a motion duly made by S. Nokleby, the November 2024 Academic Council meeting was terminated at 4:25 p.m.

Kirstie Ayotte, Assistant University Secretary

ACADEMIC COUNCIL REPORT

ACTION REQUESTED:

Recommendation	☐
Decision	☐
Discussion/Direction	☐
Information	☒

DATE: **28 January 2025**

FROM: **Undergraduate Studies Committee**

SUBJECT: **Minor Program Adjustment – Bachelor of Arts - Liberal Studies - Science, Technology and Society Specialization**

COMMITTEE MANDATE:
In accordance with Section 1. b) of the Undergraduate Studies Committee (USC) Terms of Reference, USC has the responsibility "to approve minor program adjustments and report them to Academic Council for information."

BACKGROUND/CONTEXT & RATIONALE:
The Faculty has proposed replacing the required course, ENVS 2010U with ENVS 1000U for the STS Specialization. ENVS 2010U has a number of requirements that Liberal Studies students will not be able to meet. ENVS 1000U is open to all students and will allow Liberal Studies students to include this course to develop breath and a foundation in Environmental Studies.

RESOURCES REQUIRED:

No additional resources are required

TRANSITION PLAN:
All current and new students will be able to take ENVS 1000U as credit towards the specialization. Changes will be communicated to all students by the Program Director and Academic Advising.

CONSULTATION AND APPROVAL:

- Curriculum Committee: 10 October 2024
- Faculty Council: 30 October 2024
- Undergraduate Studies Committee (for approval): 19 November 2024
- ✓ Academic Council (for information): 28 January 2025

This change was initiated by the Academic Planning Specialist in the Faculty of Science

indicating that it was a better option for students to take ENVS 1000U over ENVS 2010U as most students did not meet the pre-requisites.

NEXT STEPS:
Following presentation to Academic Council, this change will be included in the 2025-2026 Academic Calendar.

SUPPORTING REFERENCE MATERIALS:

- Minor Program Adjustment Proposal

ACADEMIC COUNCIL REPORT

ACTION REQUESTED:

Recommendation	☐
Decision	☐
Discussion/Direction	☐
Information	☒

DATE: **28 January 2025**

FROM: **Undergraduate Studies Committee**

SUBJECT: **Minor Program Adjustment – Diploma in Public Policy**

COMMITTEE MANDATE:
In accordance with Section 1. b) of the Undergraduate Studies Committee (USC) Terms of Reference, USC has the responsibility "to approve minor program adjustments and report them to Academic Council for information."

BACKGROUND/CONTEXT & RATIONALE:
The Faculty has proposed adding an additional existing POSC course (POSC 3750U - American Politics and Political Culture) as an approved elective in the Diploma in Public Policy Group B.

RESOURCES REQUIRED:
No additional resources are required

TRANSITION PLAN:
The course will be available to new and continuing students effective for Fall 2025. Academic Advising is aware of the change to be communicated to interested students.

CONSULTATION AND APPROVAL:

- ✓ Curriculum Committee: 10 October 2024
- ✓ Faculty Council: 30 October 2024
- ✓ Undergraduate Studies Committee (for approval): 19 November 2024
- • Academic Council (for information): 28 January 2025

NEXT STEPS:
Following presentation to Academic Council, this change will be included in the 2025-2026 Academic Calendar.

SUPPORTING REFERENCE MATERIALS:

- Minor Program Adjustment Proposal

ACADEMIC COUNCIL REPORT

ACTION REQUESTED:

Recommendation	☐
Decision	☐
Discussion/Direction	☐
Information	☒

DATE: **28 January 2025**

FROM: **Undergraduate Studies Committee**

SUBJECT: **Minor Program Adjustment – Bachelor of Science in Computer Science, Data Science and Digital Media specializations**

COMMITTEE MANDATE:
In accordance with Section 1. b) of the Undergraduate Studies Committee (USC) Terms of Reference, USC has the responsibility "to approve minor program adjustments and report them to Academic Council for information."

BACKGROUND/CONTEXT & RATIONALE:
The Faculty has proposed to add a new course, CSCI 4101U Advanced Mobile Devices, to a required core choice list in year 3 or 4. This new option will apply to students in the Computer Science program, including the Data Science specialization and the Digital Media specialization.

RESOURCES REQUIRED:
No additional resources required.

TRANSITION PLAN:
Effective Fall 2025. Any student currently enrolled in the program may opt to take this course within the designated choice listing. The new course offering will be advertised to students via email.

CONSULTATION AND APPROVAL:
- ✓ FSc Curriculum Committee: 28 October 2024
- ✓ Faculty Council: 5 November 2024
- ✓ Undergraduate Studies Committee (for approval): 17 December 2024
- ● Academic Council (for information): 28 January 2025

NEXT STEPS:
Following presentation to Academic Council, this change will be included in the 2025-2026 Academic Calendar.

SUPPORTING REFERENCE MATERIALS:

- Minor Program Adjustment – Computer Science
- Minor Program Adjustment – Data Science specialization
- Minor Program Adjustment – Digital Media specialization
- New Course – CSCI 4101U

ACADEMIC COUNCIL REPORT

ACTION REQUESTED:

Recommendation	☐
Decision	☐
Discussion/Direction	☐
Information	☒

DATE: **28 January 2025**

FROM: **Undergraduate Studies Committee**

SUBJECT: **Minor Program Adjustment – Bachelor of Science in Integrated Mathematics and Computer Science**

COMMITTEE MANDATE:
In accordance with Section 1. b) of the Undergraduate Studies Committee (USC) Terms of Reference, USC has the responsibility "to approve minor program adjustments and report them to Academic Council for information."

BACKGROUND/CONTEXT & RATIONALE:
The Faculty has proposed to:

- Add CSCI 1062U Accelerated Programming Workshop, and CSCI 1063U Computer Programming Workshop, to the first year required core choices.

CSCI 1062U and CSCI 1063U were created in 2024 and were implemented into the computer science program this academic year. These courses are now being proposed to be added to the IMCS program.

Many first-year students already have experience in programming and are not the intended audience for the introductory programming topics taught in CSCI 1060U. The majority of the top-ranking programs at Canadian universities offer multiple pathways for new students based on their level of competence. This program adjustment is aimed to help with retention of students who have a higher existing knowledge level of programming upon arriving at Ontario Tech.

By offering two paths for incoming computer science students, we will continue to support incoming students who do not have any programming experience, preparing them to meet the learning outcomes in CSCI 1061U that are necessary for upper year courses. For students with prior programming experience, they may find the CSCI

1062U -> CSCI 1063U path to be more appropriate for their level of competence while still receiving two semesters of practical programming courses. A diagnostic test offered in the first week of CSCI 1062U will help students correctly assess whether they should transfer into the less challenging CSCI 1060U -> CSCI 1061U path.

RESOURCES REQUIRED:
No additional resources required.

TRANSITION PLAN:
Effective Fall 2025. New incoming students will have the option to take either pathway, and students beyond first year will still be able to use their CSCI 1060U and CSCI 1061U credits towards graduation and for their course prerequisites.

CONSULTATION AND APPROVAL:
- ✓ FSc Curriculum Committee: 26 November 2024
- ✓ Faculty Council: 3 December 2024
- ✓ Undergraduate Studies Committee (for approval): 17 December 2024
- Academic Council (for information): 28 January 2025

NEXT STEPS:
Following presentation to Academic Council, this change will be included in the 2025-2026 Academic Calendar.

SUPPORTING REFERENCE MATERIALS:
- Minor Program Adjustment – Integrated Mathematics and Computer Science

ACADEMIC COUNCIL REPORT

ACTION REQUESTED:

Recommendation	☐
Decision	☐
Discussion/Direction	☐
Information	☒

DATE: **28 January 2025**

FROM: **Graduate Studies Committee**

SUBJECT: **Cyclical Program Review Executive Summary, Implementation Plan and Program Learning Outcomes – MSc and PhD in Modelling and Computational Science**

COMMITTEE MANDATE:

In accordance with Article 8 of the Ontario Tech University Institutional Quality Assurance Process (IQAP) Cyclical Review (CPR) and Auditing Procedures, the appropriate standing committee of Academic Council (USC or GSC) is responsible for approving the Final Assessment Report (FAR), Executive Summary, and Implementation Plan (IP) resulting from the Review.

Additionally, in accordance with Article 6 of the IQAP Curriculum Change Procedures, editorial revisions to Program Learning Outcomes are considered Minor Program Adjustments and are sent to the standing committee for approval.

BACKGROUND/CONTEXT & RATIONALE:

In academic years 2021-2023 a program review was scheduled for the MSc and PhD in Modelling and Computational Science. The site visit was conducted in April 2024. Following receipt of the External Examiners Report, the Dean and Program respond and an IP is prepared by the Dean. This IP is presented to the Academic Resource Committee for review and further follow-up. At the completion of a CPR the appropriate standing committee of Academic Council (USC or GSC) will review and approve the FAR, Executive Summary, and IP that synthesize the recommendations resulting from the review, identify the strengths of the program as well as the opportunities for program improvement and enhancement, and outline the agreed-upon plans for this improvement.

RESOURCES REQUIRED:

The Faculty's plans to address any resource needs are outlined in the IP. Information and support will be required from various areas of the University in order to implement the plan. The Academic Resource Committee has reviewed the resources identified in the IP.

COMPLIANCE WITH POLICY/LEGISLATION:

The Ontario Universities Council on Quality Assurance (Quality Council), established by the Council of Ontario Universities in July 2010, is responsible for oversight of the Quality Assurance Framework processes for Ontario Universities. The Council operates at arm's length from both Ontario's publicly assisted universities and Ontario's government. Under the Quality Assurance Framework, academic programs must undergo a cyclical review at least every eight years following their implementation. The purpose of the cyclical program review is to critically examine the components of a program with the assistance of outside reviewers with the goal of continuous improvement. A program review's purpose is not solely to demonstrate the positive aspects of the program, but also to outline opportunities that will lead to improvements for the future.

CONSULTATION AND APPROVAL:

The Academic Resource Committee Reviewed the Implementation Plan on 8 October 2024.
The Implementation Plan was presented to FSci Faculty Council on 10 September 2024.
The Final Assessment Report, Executive Summary, Implementation Plan, and revised learning outcomes were approved at Graduate Studies Committee on 26 November 2024.

NEXT STEPS:

- Following presentation of the Executive Summary and IP to Academic Council and the Board of Governors, a Final Assessment Report (FAR), the Executive Summary, and the IP will be sent to the Quality Council as required under the Quality Assurance Framework. A summary report is then posted on the Ontario Tech corporate website.
- The FAR, Executive Summary, and IP will be provided to the Faculty, through the Dean, to serve as the basis for the continuous improvement and monitoring of the program. A report from the program outlining the progress that has been made in implementing the recommendations will be put forward in eighteen months' time.

SUPPORTING REFERENCE MATERIALS:

- Executive Summary
- Implementation Plan (IP)
- PLO Enhancement

FINAL ASSESSMENT REPORT
Executive Summary
Cyclical Program Review

Degree Program:	**MSc and PhD in Modelling and Computational Science**
Components:	
Dean:	**Dr. Ken Wilson**
Date:	**October 2024**

Under Ontario Tech University's Institutional Quality Assurance Process (IQAP) and the Ontario Quality Assurance Framework (QAF), all programs are subject to a comprehensive review at least/at minimum every eight years to ensure that they continue to meet provincial quality assurance requirements and to support their ongoing rigour and coherence.
In academic years 2021-2023, a program review was scheduled for the Master and PhD in Modelling and Computational Science. This is the second program review for this program. A timeline of the review is provided below.

Program Review Timeline	Date
Program Review start date:	Nov. 22, 2022
Self-Study submitted/approved:	April 2, 2024
Site Visit:	April 17-18, 2024
External Reviewers Report received:	April 29, 2024
Program Response received:	June 10, 2024
Decanal Response received:	June 25, 2024

Based on the self-study, the reviewers were asked to consider ways in which new topics can be incorporated into existing courses or new elective courses, and how to streamline the incorporation of teaching from other Faculties.
The reviewers commended the program for its engagement with industry experts to inform course content, innovative approaches to content delivery, the Faculty's

strong and diverse expertise, and their commitment to student mentoring, engagement and success.
The site visit took place on **April 17 and 18, 2024.**

The review consisted of two external reviewers. During the in-person site visit, the reviewers met with the following groups and individuals:

Dr. Lori Livingston, Provost
Dr. Sean Forrester, Interim Dean of Science
Dr. Lennaert van Veen, Chair of Internal Assessment Team
Dr. Carla Cesaroni, Associate Dean, Graduate and Postdoctoral Studies
Staff from the School of Graduate and Postdoctoral Studies
Kaelan Caspary, STEM and Data Librarian
Catie Sahadath, Associate University Librarian, Scholarly Resources
Faculty, Staff and Students from the Faculty of Science
Members of the Internal Assessment Team

The external reviewers submitted 9 recommendations identifying specific steps to be taken to improve the program. The reviewers highlighted areas of improvement pertaining to program structure, faculty workload, and strengthening industry partnerships. The prioritized list of recommendations is available in the Implementation Plan.

A Final Assessment Report (FAR) has been prepared to synthesize the reports and recommendations resulting from the review, identifying the strengths of the program as well as the opportunities for program improvement and enhancement. The Implementation Plan (IP) presents a timeline of the follow-up and resource requirements addressing the recommendations from the external reviewers' report. Both documents, accompanied by this Executive Summary (ES), were delivered to the appropriate standing committee of Academic Council (USC/GSC) and approved on November 26, 2024.

Governance	Document(s)	Type of review	Date
Faculty Council	IP	Feedback	September 10, 2024
Resource Committee	IP	Resource review	October 8, 2024
USC/GSC	FAR, ES, IP	Approval	November 26, 2024
Quality Council	FAR, ES, IP	QAF requirement	
Academic Council	ES, IP	For information	January 28, 2025
Board of Governors	ES, IP	For information	
Corporate Website	ES, IP	QAF requirement	

Due Date for 18-Month Follow-up Report: January 9, 2026

Date of Next Cyclical Review: 2029-2031
Timeframe for associated site visit: Fall 2030

IMPLEMENTATION PLAN
June 2024
MSc and PhD in Modelling and Computational Science
Program Review
Prepared by: Dr. Greg Crawford

The table below presents a timeline of the follow-up and resource requirements addressing the recommendations from the external reviewers' report. The Dean solicits feedback on this Implementation Plan through Faculty Council.

Recommendation *(corresponding # from reviewers' report)*		**Action Item(s)**	**Specify role of person responsible**	**Timeline for action and monitoring**	**Resource Requirements**
1.	Increase graduate student funding (paying attention to international students), so that funding levels are in line with other research-intensive universities in southern Ontario and take into account the cost of living in the GTA area.	Monitor progress of graduate funding initiative within the new external fundraising campaign	Dean of Science (in conjunction with Advancement Office and Dean, SGPS)	Annual assessment of progress / success - July 2025 Annual assessment of progress / success - July 2026	N/A N/A
2.	Hire a tenure-track statistician/biostatistician.	Pursue potential for a CRC hire in bioinformatics (a collaborative approach)	Dean of Science	(Waiting to hear status of current proposal)	N/A

3.	Develop preparatory courses or resources to address disparities in programming and foundational mathematics skills among incoming students, ensuring all students have a strong foundation for success.	Subcommittee of Steering Committee to draft a course proposal	GPD	December 2024	If developed and approved, will need to determine how to resource its delivery
6.	Increase the breadth of courses in the books (all of which need not be offered on a regular basis), some of these would be available and offered when there is sufficient demand. Course breadth can also be achieved through joint offerings with other academic institutions in the area (e.g. Trent U).	Review potential topics for courses and assess how to include in course rotation	GPD (in consultation with program faculty and Dean)	December 2024	Currently assuming no net new courses per year. If more courses end up being offered, they will need to be resourced.
7.	The Program should also consider offering courses through the Fields "Academy". This would enable faculty to reach a broader student audience and could potentially attract future graduate students to Ontario Tech and this Program (NB Fields also offers compensation of roughly $10K to the Institution for such courses).	Review potential for working with Fields institute to assess course options available there	GPD (in consultation with program faculty and Dean)	December 2024	Funding implications need to be determined

8.	Implement a robust system for ongoing program evaluation and monitoring, collecting feedback from stakeholders and tracking student outcomes to inform programmatic changes and ensure responsiveness to evolving needs.	Discuss with Institutional Research Office if graduation rates and student performance data can be generated automatically and routinely made available to GPDs	Dean	October 2024	TBD

Recommendations not Addressed and Rationale

#	Recommendation not Addressed	Rationale
4.	Reduction of teaching loads to 3 courses/year for research faculty who publish, hold an NSERC grant and supervise 2+ graduate students (at least one of whom is a PhD student).	The workload model is determined by the institution in a manner consistent with the collective agreement and, to the extent possible, consistent across Faculties.
5.	Strengthen industry partnerships to provide more opportunities for experiential learning and align the curriculum with current industry trends, enhancing students' real-world application skills.	Industry engagement lies primarily with individual faculty members and their interests. We note SGPS offers a wide range of Graduate Professional Skills training and workshops (e.g., Base Camp sessions).
9.	Provide logistical and financial support for recruitment/promotion efforts.	We recognize this to be an important issue. Rather than establishing specific goals and timelines, our approach will be to have program faculty determine if and where key recruitment opportunities exist. At that point, the ideas will be communicated to and discussed with Dean by the GPD. We hope this will lead some concrete improvements in recruitment efforts (e.g., with an annual budget ask).

Cyclical Program Review: Summary of program learning outcome enhancements

[This form should be used in cases where program learning outcomes have been enhanced for an existing undergraduate or graduate program as the result of a cyclical program review. The program and course learning outcomes must be reviewed and revised using resources provided by CIQE and the Teaching and Learning Centre (TLC). This form will be appended to the Final Assessment Report and presented at the appropriate standing committee of Academic Council (USC or GSC) for approval.]

Faculty: Faculty of Science	
Program: MSc/PhD Modelling and Computational Science	
Review year: 2021-2023	
Undergraduate: ☐	**Graduate**: x

Original program learning outcome(s): (*last reviewed in 2021*)

1. Review the existing literature related to a specific scientific subject. (MSc and PhD)
2. Analyze a practical problem and choose (or formulate) a suitable model to describe it (e.g., continuous/discrete, deterministic/stochastic, etc.). (MSc and PhD)
3. Identify (or develop) appropriate simulation approaches, algorithms, numerical schemes, and analytic methods for solving a problem at hand. (MSc and PhD)
4. Implement codes (using existing packages when appropriate) within practical scientific computational environments. (MSc and PhD)
5. Evaluate and interpret computed results critically. (MSc and PhD)
6. Communicate scientific ideas, concepts and results effectively in writing and verbally. (MSc and PhD)
7. Transfer modelling and computational skills to a variety of domain-specific contexts. (MSc and PhD)
8. Develop predictive models based on structured and unstructured data. (MSc and PhD)
9. Effectively visualize output and analysis from computational models. (MSc and PhD)
10. Formulate specific research questions relevant to challenges in modelling and computational science. (PhD only)
11. Demonstrate critical awareness of the relevant scientific literature, current problems and new knowledge about a particular area of research within modelling and computational science. (PhD only)

Total number of original outcomes: 11

Proposed enhanced learning outcomes: (Updated outcomes as a result of the program review learning outcome workshops)

1. Analyze and extract relevant aspects of the existing literature related to a specific subject in Modelling and Computational Science. (MSc and PhD)
2. Analyze a practical problem and select or formulate a suitable model to describe it. (MSc and PhD)
3. Identify or develop appropriate simulation approaches, algorithms, numerical schemes, and analytic methods for model characterization. (MSc and PhD)
4. Write and implement codes for scientific computing, including appropriate HPC techniques. (MSc and PhD)
5. Evaluate, analyze, visualize and interpret computed results. (MSc and PhD)
6. Communicate scientific and technical ideas, concepts and results effectively, in writing and verbally, at a level appropriate for the audience. (MSc and PhD)
7. Transfer modelling and computational skills to a variety of contexts. (MSc and PhD)
8. Build and utilize project management skills to work efficiently in interdisciplinary groups.
9. Formulate specific research questions relevant to challenges in modelling and computational science. (PhD only)
10. Demonstrate critical awareness of the relevant scientific literature, current problems and new knowledge about a particular area of research within modelling and computational science. (PhD only)

Total number of enhanced outcomes: 10

Have the enhanced outcomes been mapped to the degree-level expectations (DLEs)?

X Yes **☐ No**

If no, this should be completed no later than:

Are you providing any additional supporting documents? X Yes **☐ No**

If yes, which (list all)?

GDLE alignment map available upon request from CIQE

CIQE INTERNAL APPROVAL

Appended to FAR	
FAR, Outcomes, Executive Summary, Implementation Plan approved by USC/GSC	26 November 2024
Final Approved FAR, Outcomes, Executive Summary and Implementation Plan sent to Faculty, through the Dean, as primary owner	
Outcomes entered into Curriculog	

ACADEMIC COUNCIL REPORT

ACTION REQUESTED:

Recommendation	☐
Decision	☐
Discussion/Direction	☐
Information	☒

DATE: **28 January 2025**

FROM: **Undergraduate Studies Committee**

SUBJECT: **Cyclical Program Review - 18-Month Follow-up – Bachelor of Science (Hons) in Physics**

COMMITTEE MANDATE:
In accordance with Article 8 of the Ontario Tech University Institutional Quality Assurance Process (IQAP) Cyclical Review and Auditing Procedures, eighteen months following the completion of a program review the Dean will prepare a brief follow up report and "A summary of the progress report will be approved by the appropriate standing committee of Academic Council". This summary report will be reported to Academic Council for information and subsequently posted to the Ontario Tech corporate website.

BACKGROUND/CONTEXT & RATIONALE:
Eighteen months after the completion of a program review the Faculty is asked to report on the progress to date in implementing the agreed upon plans for improvement. The report is sent to the Academic Resource Committee for review and further follow-up, if required.

RESOURCES REQUIRED:
The Faculty's plans to address any remaining resource needs are outlined in the 18-Month report. Information and support will be required from various areas of the University in order to implement the plan as originally agreed.

COMPLIANCE WITH POLICY/LEGISLATION:
The Ontario Universities Council on Quality Assurance (Quality Council), established by the Council of Ontario Universities in July 2010, is responsible for oversight of the Quality Assurance Framework processes for Ontario Universities. The Council operates at arm's length from both Ontario's publicly assisted universities and Ontario's government. Under the Quality Assurance Framework, academic programs must undergo a cyclical review at least every eight years following their implementation. The purpose of the cyclical program review is to critically examine the components of a program with the assistance of outside reviewers with the goal of continuous improvement. A program review's purpose is not solely

to demonstrate the positive aspects of the program, but also to outline opportunities that will lead to improvements for the future.

NEXT STEPS:
Following the presentation to Academic Council, this summary will be posted to the University's website.

SUPPORTING REFERENCE MATERIALS:

- 18-Month Report Summary

18-Month Follow-Up Report Cyclical Review

FACULTY: **Science**
PROGRAM: **BSc Physics**
DATE: **October 2024**
PREPARED BY: **Dr. Ken Wilson**

This program review was completed in April 2023. The chart below outlines the progress that has been made in implementing the agreed upon plans for improvement.

Please provide as much detail and rationale as possible.

Implementation Plan Action Item(s) *(corresponding recommendation # from reviewers' report)*			**Timeline**	**Status***	**Comments from Dean on progress of implementation**
1.	(a) Invest in enough 1st year lab equipment so they do not need to be offered on a rotating basis	Work on a plan to build up the required equipment (with priorities identified)	Meeting to discuss: Sept. 2023 (or earlier); Preliminary budget submission: Dec. 2023	In progress	Some replacement and augmentation of the 1st year lab equipment has occurred. There is a need to develop a budgeting plan that factors in the pedagogical needs of the 1st year program. This plan needs to be driven by the physics faculty/instructors to ensure that the right equipment is obtained with a view to future proofing the labs
	(b) Additional training for 1st year lab TAs	Physics faculty to assess feasibility (and any costs), review options and develop a plan	Develop plan: Dec. 2023; (resources would need to be approved and allocated; implementation plan (Aug. 2024)	In progress	Discussions for TA training for those that do first year labs and tutorials are underway. Not yet implemented but plan to be launched in September 2025

3.	Consider hiring a computational astrophysicist to replace retiring research faculty	Dean to consult with Physics faculty; seek approval to post for Fall 2023	Dean to meet with Physics faculty (May 2023) Seek hiring approval (by September 2023)	In progress	It is not clear if there is sufficient student enrollment demand to justify the expense of an additional hire at this time. An internal review of program/research strengths will be conducted during 2024/25 with a view to proposing a new TTT hire to support the program following the noted retirements
4.	Modify names of two 3rd year courses	Modify names of these courses (slight variations on what was recommended)	Submit course change proposals (by December 2023)	Cancelled	Not viewed by the faculty or the dean as a necessary change
5.	Support increases in physics co-op participation by:				
	(a) Holding a broader, university-level discussion about co-op resourcing	(a) Once the results of a recent external review of experiential learning/co-op are made available, determine how co-op resourcing may be impacted	(a) Determine budget implications (for Science co-op), based on university response to review recommendations and assess next steps (July 2023)	In progress	There is currently a restructuring underway in the university-level co-op and experiential learning office. It looks like additional resources will be made available to the faculty of science for supporting co-op and experiential learning. Physics will benefit from this change. We also added a co-op advisor to the science faculty council to improve communications
	(b) contact alumni about possible co-op positions;	(b) Develop an approach to increase Physics alumni engagement (including possible co-op positions)	(b) Alumni plan developed by July 2023	In progress	Will be done as part of a broader faculty of science outreach/communications/recruitment strategy in 2025
6.	Build a better relationship with the library	Engage the Science Librarian in some upper-year courses focused on research techniques	At least one upper year course with a librarian by April 2024	Continuous	The dean has met with the Science Librarian and is working on that relationship. In discussions with the faculty, some already invite the science librarian to their upper year classes for advice on how to best use library resources for their projects

7.	Initiate a conversation with the Education Faculty to see if a collaborative program can be revitalized	Initiate conversations with the Education Faculty	Initiate conversations with Education Faculty (November 2022)	In progress	Both the Dean of Education and the Dean of Science are new to OTU (Sept 1, 2024). This will be raised at an upcoming meeting.

*Process Status Legend:

***Complete**: Accomplished action item; no further steps required.*
***Continuous**: Initial action item complete but requires ongoing monitoring and/or enhancement.*
***In Progress:** Progress on the action item has been initiated but is not complete at this time. Outline all steps taken in the comment's column.*
***On Hold**: Unable to complete due to other dependent factor(s).*
***Cancelled**: Item no longer relevant or resources unavailable.*

Additional comments:
As a Dean starting my appointment in Sept 2024, I came into this process in the middle. Thus my background knowledge of the program is limited to initial views and the documentation provided. It should be noted that some of my views and priorities may not reflect or agree with those of the previous Dean. As I learn more about the program and the faculty who run the Physics unit, I will be better able to address what I see as outstanding concerns in a thoughtful and meaningful manner.

This 18-month follow-up report will be sent to the Resource Committee for review. The Committee may recommend further monitoring of outstanding items on a case-by-case basis. A summary of this report will be prepared and approved by the appropriate standing committee of Academic Council (USC/GSC), reported to Academic Council, and posted on the Ontario Tech corporate website.

Next Scheduled Program Review: 2027-2029

ACADEMIC COUNCIL REPORT

ACTION REQUESTED:

Recommendation	☐
Decision	☐
Discussion/Direction	☐
Information	☒

DATE: **January 28, 2024**

FROM: **Undergradaute Studies Committee**

SUBJECT: **Undergraduate Advanced Standing and Transfer Credit Procedures – Editorial Amendment**

COMMITTEE MANDATE:

In accordance with Section 1. g) of the Undergraduate Studies Committee (USC) Terms of Reference, USC has the responsibility "to examine policy issues related to undergraduate curriculum and instructional development."

BACKGROUND/CONTEXT & RATIONALE:

Having last been amended in spring 2020, the Undergraduate Advanced Standing and Transfer Credit Procedures were due for review. The procedures were reviewed by the Director of Admissions and Recruitment and were deemed accurate except for references to the Faculty of Energy Systems and Nuclear Science. The closure of this faculty was formally approved by Academic Council in 2022. Removal of this content was deemed an editorial amendment by the Office of the University Secretary and General Counsel and thus can be approved by the Office of the Registrar. Attached is a PDF copy of the email trail approving the editorial amendment.

RESOURCES REQUIRED:

No additional resources are required

CONSULTATION AND APPROVAL:

- Undergraduate Studies Committee (for information): December 17, 2024
- Academic Council (for information): January 28, 2025

NEXT STEPS:

ACD 1526.01 - Undergraduate Advanced Standing and Transfer Credit Procedures will be updated on the website.

SUPPORTING REFERENCE MATERIALS:

- ACD 1526.01 - Undergraduate Advanced Standing and Transfer Credit Procedures
- Email trail approving editorial amendment.

From:	Adam Wingate
To:	Niall O"Halloran
Cc:	"Joe Stokes"
Subject:	RE: Updates to admissions-related policy instruments
Date:	Thursday, October 31, 2024 2:30:00 PM
Attachments:	ACD 1526.01 Undergraduate Advanced Standing and Transfer Credit Procedures AC Approved April 28 2020 - SB updated Oct 25 2024.docx

Edit approved.

@Joe Stokes FYI

From: Niall O'Halloran <Niall.O'Halloran@ontariotechu.ca>
Sent: Wednesday, October 30, 2024 2:55 PM
To: Adam Wingate <Adam.Wingate@ontariotechu.ca>
Subject: RE: Updates to admissions-related policy instruments

Hi Adam, see the table below. Happy to discuss if you have any questions

Undergraduate Advanced Standing and Transfer Credit Procedures	Editorial Removal of FESNS (reflects change authorized by board).	Registrar Approval

From: Adam Wingate
Sent: Wednesday, October 30, 2024 11:40 AM
To: Niall O'Halloran <Niall.O'Halloran@ontariotechu.ca>
Subject: Updates to admissions-related policy instruments

Hi Niall,

Can you please review the attached draft instruments and let me know which are considered editorial vs. substantive as well as the appropriate approval path?

Thanks,
Adam

Adam Wingate, M.Ed.
Associate Registrar and Director, Records & Scheduling - Office of the Registrar
Ontario Tech University
905.809.1587

Classification Number	ACD 1526.01
Parent Policy	Undergraduate Advanced Standing and Transfer Credit Policy
Framework Category	Academic
Approving Authority	Academic Council
Policy Owner	Registrar
Approval Date	DRAFT
Review Date	December 2027
Supersedes	Academic Regulations, Undergraduate Academic Calendar 2019/2020

Undergraduate Advanced Standing and Transfer Credit Procedures

PURPOSE

1. The purpose of this Procedure is to outline the rules and regulations which relate to the granting of transfer credit to undergraduate applicants and students.

DEFINITIONS

2. For the purposes of this Policy the following definitions apply:

"Academic standing" means a student's official status of enrolment at the university as evaluated at the end of each semester; used to assess whether students are meeting the standards prescribed for continuing in the university and/or their programs.

"Core or professional engineering courses" means courses which consist of Engineering Science and Engineering Design content as defined by Engineers Canada.

"Credit hour" is the measure used to reflect the relative weight of a given course toward the fulfilment of degree requirements. Unless otherwise indicated, a course normally has a credit hour value of three.

"Prerequisite" means a course that must be successfully completed prior to commencing a second course for which it is required.

SCOPE AND AUTHORITY

3. This Policy applies to both applicants and students in undergraduate-level programs.

4. This Policy does not apply to graduate or professional-level applicants.

5. The Registrar, or successor thereof, is the Policy Owner and is responsible for overseeing the implementation, administration and interpretation of this Policy.

PROCEDURE

6. **Secondary School Students**

6.1. In order to be considered for advance standing, students must achieve minimum subject scores of 4 in the Advanced Placement examinations, 5 in the International Baccalaureate examinations, 3 in CAPE examinations and a grade of C or better in Advanced Level (A Level) courses; minimum subject scores may vary by subject.

6.2. Credit and exemption will not be given for completion of high school Advanced Placement, International Baccalaureate, Caribbean Advanced Proficiency Examinations, or Advanced Level (A Level) courses unless an acceptable score is attained on the examination administered by the appropriate board. Students in the Faculty of Engineering and Applied Science are not eligible for advanced standing for core or professional engineering courses.

7. Students transferring from other post-secondary institutions

7.1. In order to be considered for advance standing, university transfer students must achieve a minimum grade of C- in the course(s) they wish to have transferred. Students transferring from a college diploma program (or equivalent) must achieve a minimum grade of B- to achieve advance standing.

7.2. Students transferring from a college diploma program (or equivalent) are not eligible to receive transfer credit toward any core or professional engineering courses in the Faculty of Engineering and Applied Science.

8. Letters of Permission

8.1. In order to be eligible to take a course(s) on letter of permission at another post-secondary institution, students must be in clear academic standing (minimum cumulative grade point average of 2.0), have successfully completed nine Ontario Tech University credit hours prior to request and have the necessary prerequisite courses(s).

8.2. In addition to meeting the eligibility requirements, students must also abide by the following restrictions:

a) A maximum of 30 faculty-approved credit hours may be completed via Letter of Permission.

b) Challenge for credit courses will not be considered.

c) The host institution must offer university-level courses and be accredited by a recognized governing body.

d) The combination of transfer and letter of permission credits cannot exceed the university's institutional residency requirement.

8.3. At the discretion of the Dean, a faculty may impose additional requirements for students in their programs. The final decision regarding eligibility is that of the Dean of a faculty, in consultation with the faculty.

MONITORING AND REVIEW

9. This Policy will be reviewed as necessary and at least every three years. The Registrar, or successor thereof, is responsible to monitor and review this Policy.

RELEVANT LEGISLATION

10. This section intentionally left blank

RELATED POLICIES, PROCEDURES & DOCUMENTS

11. Alternate Pathways - Undergraduate
Undergraduate Advanced Standing and Transfer Credit Policy
Canadian Engineering Accreditation Board – 2018 Accreditation Criteria and Procedures (Pages 53-60)

POLICY CONSULTATION REPORT

TO: **Academic Council**

DATE: **January 28, 2024**

FROM: **Niall O'Halloran, Manager, Policy & Privacy**

SUBJECT: **Written Consultation Opportunity: Student Housing Policy**

BACKGROUND:

In July 15, 2024 the Minister of Colleges and Universities (MCU) introduced new requirement for institutions with respect to student housing, including that publicly-assisted postsecondary institutions will be required to publish their student housing policies. Ministry guidance has also established key elements required in the policy, including, at a minimum a commitment to:

1) ensure information is easy to access;
2) provide a suitable range of options in line with size/enrolment levels of institution that are inclusive of the student population and reflect and consider the local community environment.
3) provide comprehensive off-campus housing resources that include general housing education, housing search, leasing support, short-term housing information and information about financing opportunities and assistance.
4) detail any other commitments, supports or services including first-year housing guarantee (if available) and housing options for international students.

Additionally, the MCU is asking institutions to complete a 2024 Student Housing Survey.

OPPORTUNITY TO COMMENT:

- The Office of the Deputy Provost is seeking community comments on the proposed policy instruments. Comments submitted will be considered by the Policy Owner.
- You may submit your feedback and recommendations for these draft policy instruments amendment to policy@ontariotechu.ca until February 4, 2025.

NEXT STEPS:

The consultation and approval path for the Policy will be as follows:

- Policy Advisory Committee (policy assessment)
- Online Consultation (written consultation)
- Academic Council (written consultation)
- Senior Leadership Team (deliberation)
- President (approval)

SUPPORTING MATERIALS:

- Student Housing Policy

Classification Number	ADM XXXX
Framework Category	Administrative
Approving Authority	President
Policy Owner	Deputy Provost & VP Administration
Approval Date	DRAFT FOR CONSULTATION
Review Date	
Supersedes	

Student Housing Policy

PURPOSE

1. The purpose of this Policy is to improve access to information and resources related to student housing services to better provide affordable and safe housing options to students and support their well-being and success.

DEFINITIONS

2. For the purposes of this Policy the following definitions apply:

"Incoming Students" means a first-year student at the undergraduate level whose program starts in September.

"On-Campus Housing" means residence and apartment-style housing located on the University's Space.

"University Space" means any location owned, leased, rented or otherwise occupied by the University.

SCOPE AND AUTHORITY

3. This Policy applies to the delivery of student housing services, by the University.

4. The Deputy Provost, or successor thereof, is the Policy Owner and is responsible for overseeing the implementation, administration and interpretation of this Policy.

POLICY

5. The University will make available to its student population a diverse range of housing options that align with the institution's size and enrollment levels and are inclusive of the diverse needs of the University's student population and needs, including accessible accommodations.

6. The University will guarantee On-Campus Housing for each Incoming Student provided the Incoming Student meets the requisite deadlines for the acceptance of their admission offer and application to residence, signs and abides by the residence agreement, and meets all deposit and payment requirements.

7. The University will endeavor to ensure housing is available for international students who are not Incoming Students through On-Campus Housing, or when On-Campus Housing is not

available, through an easily accessible resource that provides assistance in finding suitable housing in the community.

8. The University will provide its students with easily accessible resources to provide support, information and guidance on housing, including:

8.1. Information on available housing services and resources in the form of dedicated, accessible and easily navigable web pages or resources that provide comprehensive information, and contact details for students seeking housing.

8.2. Housing resource personnel to offer support, guidance, and information to students.

8.3. Robust off-campus housing resources, including:

a) An easily accessible resource that provides assistance in finding suitable housing in the community.

b) General housing education including information on leasing, short-term housing options, safety, financing opportunities and assistance programs, and community resources that provide support for legal matters and other relevant resources;

MONITORING AND REVIEW

9. This Policy will be reviewed as necessary and at least every three years (unless another timeframe is required for compliance purposes). The Deputy Provost, or successor thereof, is responsible to monitor and review this Policy.

RELEVANT LEGISLATION

10. This section intentionally left blank.

RELATED POLICIES, PROCEDURES & DOCUMENTS

11. This section intentionally left blank.