ACADEMIC COUNCIL MEETING
Graduate Studies Committee (GSC)

AGENDA
Date: June 23, 2026
Time: 9:00 a.m. - 10 a.m.
Zoom Videoconference Link (registration required)

GSC Meeting Schedule and Materials 2025-2026

No.		Topic	Lead	Suggested Start Time
PUBLIC SESSION				
1.		**Call to Order and Land Acknowledgement**	Chair	9:00 a.m.
2.		**Agenda (M)**		
3.		**Chair's Remarks**		
4.		**Minor Program Adjustment (Approval)**		
	4.1	Faculty of Engineering and Applied Science: PhD in Electrical and Computer Engineering, PhD in Mechanical Engineering, and PhD in Nuclear Engineering* (M)	K. McCartney	9:10 a.m.
5.		**New Program Proposal (Recommendation)**		
	5.1	Faculty of Engineering and Applied Science: Engineering Graduate Diplomas* (M) 5.1.1 Advanced Automotive Engineering 5.1.2 Advanced Robotics 5.1.3 AI Engineering 5.1.4 Digital Transformation in Advanced Manufacturing 5.1.5 Energy Systems Engineering 5.1.6 Smart Grid Engineering	K. McCartney	9:20 a.m.
6.		**Academic Policy Instruments**		
	6.1	Cotutelle Policy and Procedures Amendments* (M)	M. Hossein-Nejad	9:35 a.m.
	6.2	Graduate Experiential Learning Policy* (M)		
7.		**Consent Agenda: (M)**	Chair	9:55 a.m.
	7.1	Public Minutes of the May 26, 2026 Meeting* (M)		

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

	7.2	Minor Curricular Changes: (I) 7.2.1 New course proposals: ENGR 5001W, ENGR 5002W 7.2.2 Course Reinstate: HLSC 5126G		
	7.3	Graduate Faculty (I) • Education, Shawn Bullock, Frazer Faculty of Education		
8.		**Termination**	Chair	10:00 a.m.

Nicola Crow, University Secretary

GRADUATE STUDIES COMMITTEE REPORT

ACTION REQUESTED:

Recommendation	☐
Decision	☒
Discussion/Direction	☐
Information	☐

DATE: **23 June 2026**

FROM: **Faculty of Engineering and Applied Science**

SUBJECT: **Minor Program Adjustment – PhD in Electrical and Computer Engineering, PhD in Mechanical Engineering, and PhD in Nuclear Engineering**

COMMITTEE MANDATE:
In accordance with the Graduate Studies Committee (GSC) Terms of Reference, GSC has the responsibility "to approve minor program adjustments" and report them to Academic Council for information.

MOTION FOR CONSIDERATION:
That GSC hereby approves the Minor Program Adjustment for PhD programs to reduce the number of courses required for MASc to PhD transfer students from nine courses to seven courses.

BACKGROUND/CONTEXT & RATIONALE:
Currently, MASc to PhD transfer students are required to complete the full scope of degree requirements for both programs. As currently outlined in the Graduate Academic Calendar for the FEAS PhD programs – Electrical and Computer Engineering, PhD, Mechanical Engineering, PhD, and Nuclear Engineering, PhD:

A student who transfers directly into the PhD program after one full year in the MASc program must complete nine courses worth a total of 27 credits, Seminar, Workshops and a dissertation worth 40 credits.

The proposed change will reduce the number of courses required for MASc to PhD transfer students from nine courses to seven courses. Upon transfer, a maximum of two courses taken during the MASc degree may be counted towards the PhD degree

requirement. In addition, the student must fulfill all other requirements for the PhD degree.

The reduced course load for MASc to PhD transfer students aligns with the practice of other institutions. Students will be able to better focus on their research with the reduction of the number of courses required.

RESOURCES REQUIRED:
No additional resources required.

TRANSITION PLAN:
This change is proposed to be effective as of Fall 2026. The Graduate Engineering Program Office will communicate this change to current students. New students as of Fall 2026 will only be required to complete seven courses.

CONSULTATION AND APPROVAL:
- ✓ FEAS Graduate Committee: 14 May 2026
- ✓ FEAS Faculty Council: 28 May 2026
- Graduate Studies Committee (Approval): 23 June 2026
- Academic Council (Information): 22 September 2026

NEXT STEPS:
Pending the approval of GSC, this change will be presented for information to Academic Council and included in the 2027-2028 Academic Calendar but will be implemented for Fall 2026.

SUPPORTING REFERENCE MATERIALS:
Electrical and Computer Engineering, PhD
Mechanical Engineering, PhD
Nuclear Engineering, PhD

GRADUATE STUDIES COMMITTEE REPORT

ACTION REQUESTED:

Recommendation	☒
Decision	☐
Discussion/Direction	☐
Information	☐

DATE: **23 June 2026**

FROM: **Faculty of Engineering and Applied Science**

SUBJECT: **New Program Proposals – Engineering Graduate Diplomas**

COMMITTEE MANDATE:
In accordance with the Graduate Studies Committee (GSC) Terms of Reference, GSC has the responsibility "to examine proposals for new graduate degree and diploma programs" and "to recommend their approval, as appropriate, to the Academic Council".

MOTION FOR CONSIDERATION:
That GSC hereby recommends to Academic Council the approval of the following new Graduate Diploma (Type 3) programs in the Faculty of Engineering and Applied Science and the subsequent recommendation of the programs to the Board:

- Advanced Automotive Engineering
- Advanced Robotics
- AI Engineering
- Digital Transformation in Advanced Manufacturing
- Energy Systems Engineering
- Smart Grid Engineering

BACKGROUND/CONTEXT & RATIONALE:
The Faculty of Engineering and Applied Science is proposing the introduction of six (6) new Graduate Diploma (GDip) programs. These diplomas are designed to respond to growing industry demand for advanced, specialized skills in these areas. They provide credential laddering opportunities for recent graduates seeking to deepen their expertise, as well as for working engineers looking to upskill or reskill. The programs will be offered in a flexible hybrid format, allowing for both part-time and full-time study to accommodate diverse learner needs and schedules.

RESOURCES REQUIRED:
The proposed programs are designed to complement, rather than compete with, existing offerings within the Faculty and across the University. By leveraging shared courses with

graduate program offerings, the GDips will promote efficient use of resources while maintaining the quality and integrity of graduate education.

As the course delivery will leverage existing graduate course offerings, no additional human resources are required at this time. Additional instructional support may be needed if enrollment grows to the point where multiple sections of a course must be offered. Any such needs will be addressed through normal planning processes, with hiring details and timing coordinated and confirmed with the Provost's Office through regular operational discussions.

No additional space requirements are required.

CONSULTATION AND APPROVAL:

- ✓ Academic Resource Committee: 9 December 2025
- ✓ FEAS Faculty Council: 28 May 2026
- Graduate Studies Committee: 23 June 2026
- Academic Council (Approval and Recommendation): 22 September 2026
- Board of Governors (Approval): Fall 2026

NEXT STEPS:

- Pending the recommendation of GSC, the program proposals will be presented to Academic Council for approval and recommendation to the Board.
- The proposals must also proceed through the following external approval steps:
  - Ontario Universities Council on Quality Assurance
  - Ministry of Colleges, Universities, Research Excellence and Security (if desired)

The preferred date of implementation is the Fall of 2027.

SUPPORTING REFERENCE MATERIALS:

- New Program Proposal with Appendices: Advanced Automotive Engineering
- New Program Proposal with Appendices: Advanced Robotics
- New Program Proposal with Appendices: AI Engineering
- New Program Proposal with Appendices: Digital Transformation in Advanced Manufacturing
- New Program Proposal with Appendices: Energy Systems Engineering
- New Program Proposal with Appendices: Smart Grid Engineering

Full name of proposed program (as it will appear on the student's transcript): (e.g., Master of Arts in Education; Master of Science in Applied Bioscience)	Graduate Diploma in Advanced Automotive Engineering
Degree designation and short form: (e.g., Master of Arts, M.A.; Master of Science, M.Sc.)	GDip
Cost recovery program:	☐Yes ☒No
Professional program:	☒Yes ☐No
For graduate diplomas:	☐Type 2 ☒Type 3
Faculty offering the program: (i.e., where the program will be housed/site of academic authority)	Faculty of Engineering and Applied Science
Collaborating Faculty(ies) (if applicable):	N/A
Collaborating institution(s) (if applicable):	N/A
Program delivery location:	Ontario Tech North Campus and Hybrid
Proposed program start date (please change as needed):	Fall 2027
Program proponent/contact:	Xianke Lin
Version date (please change as you edit this proposal):	May 14, 2026
Date of Academic Council Approval:	

New Graduate Program Proposal

The program proposal and accompanying documents must address the purpose and content of the new program and the capacity of the unit to deliver a high-quality program. This template is for all proposals for new graduate programs and aligns with Ontario Tech Institutional Quality Assurance Process (IQAP) requirements and, together with the required supporting documents, will help to ensure that all evaluation criteria established by the Quality Council are addressed. All sections of the template are required.

Brief **description of the proposed program[1]:** (NOTE: Text box is formatted to limit the description to 1000 characters or less. This description should be identical to the 'Program Abstract' on page one of the proposal.)

The automotive sector is undergoing rapid transformation driven by electrification, autonomy, and software-defined vehicle technologies, creating strong demand for engineers with advanced, industry-relevant skills. Canada's automotive industry remains a key contributor to the economy and is central to achieving sustainability and innovation goals. The Graduate Diploma in Advanced Automotive Engineering is designed for recent graduates and industry professionals with engineering backgrounds who seek to deepen their expertise and transition into next-generation automotive roles. Students will gain advanced knowledge in electric powertrains, vehicle dynamics, embedded and control systems, and intelligent/autonomous vehicle technologies, along with practical skills in modeling, simulation, and system integration.

[1] NOTE: Following the Quality Council's approval of the proposed program, the QA Secretariat will seek confirmation from the University that this description is appropriate to post on the Quality Council's website (Approved Programs — Ontario Universities Council on Quality Assurance (oucqa.ca))

New Graduate Program Proposal

Graduate Diploma in Advanced Automotive Engineering
Faculty of Engineering and Applied Science

1 Program Abstract

Please provide a brief overview of the proposed program, summarizing the key points, to be shared with the public, in 1000 characters or less. You may wish to include:

- *A clear statement of the purpose of the program (who is it for, what are the outcomes)*
- *Any program components, such as fields, pathways, or micro-credentials (note that fields, pathways, and micro-credentials are not required)*
- *Nature of the learning environment, noting any distinctive elements, including alternative modes of delivery (including online)*

Note that this statement will be used on a standalone basis and is for external purposes; what do you want potential students/advisors to know about this program? (You may wish to complete this section last.)

The automotive sector is undergoing rapid transformation driven by electrification, autonomy, and software-defined vehicle technologies, creating strong demand for engineers with advanced, industry-relevant skills. Canada's automotive industry remains a key contributor to the economy and is central to achieving sustainability and innovation goals. The Graduate Diploma in Advanced Automotive Engineering is designed for recent graduates and industry professionals with engineering backgrounds who seek to deepen their expertise and transition into next-generation automotive roles. Students will gain advanced knowledge in electric powertrains, vehicle dynamics, embedded and control systems, and intelligent/autonomous vehicle technologies, along with practical skills in modeling, simulation, and system integration.

2 Academic Rationale

- *Identify what is being proposed, clearly state the program objectives, and provide an academic rationale for the proposed program (what is being created and why?)*

- *Explain the appropriateness of the program name and degree nomenclature, particularly as they relate to the program objectives*
- *Describe the mode of delivery (in-class, hybrid, online) and any work-integrated learning; outline how the delivery and components are appropriate to support students in achieving the Degree Level Expectations, program outcomes, and Program Learning Outcomes*
- *Discuss how the program addresses the current state of the discipline or area of study*
- *Describe the ways in which the program fits into the broader array of program offerings within the Faculty and the University*
- *Describe any unique curriculum or program innovations, creative components, or significant high impact practice*

The Graduate Diploma in Advanced Automotive Engineering is designed for engineers in industry and recent graduates seeking specialized expertise in modern vehicle technologies. The program consists of four (4) graduate-level courses (12 credit hours) selected from existing automotive engineering offerings, including vehicle dynamics, powertrains, materials and manufacturing, aerodynamics, and noise-vibration-harshness (NVH).
The program is delivered in a hybrid format and leverages existing graduate courses within the Faculty of Engineering and Applied Science. Courses emphasize advanced, applied learning through modeling, simulation, and system-level analysis, with graduate-level deliverables focused on industry-relevant problem solving.
The program name and nomenclature accurately reflect the scope and objectives, clearly identifying a focused, professionally oriented credential that builds on an engineering foundation while specializing in advanced automotive systems.
Innovative features include:

- Integration of electrified powertrain and software-defined vehicle concepts
- Emphasis on simulation-driven design and system integration
- Flexible course selection aligned with industry needs

The program addresses the rapid transformation of the automotive sector driven by electrification, autonomy, connectivity, and advanced manufacturing.

Describe any fields and/or any pathways from related programs. (Graduate programs are not required to have fields in order to highlight an area of strength or specialization within a program, nor are they required to provide specific pathways from programs at the college, bachelor, or other level.)

N/A

3 University Mission, Vision, Integrated Academic and Research Plan, and Strategic Mandate Agreement

- *Detail the consistency of the program objectives with the Mission, Vision, Integrated Academic and Research Plan, and Strategic Mandate Agreement*
- *Describe how the program contributes to the University's Mission and Vision*
- *Explain how the program aligns with the goals and priorities outlined in the Faculty's(ies') and University's Integrated Academic and Research Plan*
- *Is this program consistent with the mandate of the sector? (i.e. technically/vocationally/theoretically/academically oriented for universities) Identify how the program fits within one or more areas of strength or growth in Ontario Tech University's Strategic Mandate Agreement*

The proposed Graduate Diploma in Advanced Automotive Engineering aligns strongly with Ontario Tech University's mission to provide innovative, technology-focused programs that respond to market-driven needs.

The automotive sector is undergoing significant transformation driven by electrification, autonomous systems, and digitalization. The program directly supports Ontario Tech's vision of "embracing technology with a conscience to advance knowledge and promote sustainability," particularly through its focus on electric vehicles, energy efficiency, and intelligent mobility systems.

The program contributes to the university's goal of preparing graduates to solve complex, real-world engineering challenges. Modern automotive systems are highly integrated and multidisciplinary, requiring expertise across mechanical, electrical, and software domains.

This GDip strengthens Ontario Tech's established leadership in automotive engineering and complements existing MASc and MEng programs, further positioning the university as a hub for advanced mobility research and training.

4 Need, Demand, and Duplication

Provide evidence of the need and demand for the program and how this has been determined, focusing on:

- *Student interest:*
  - ➢ *including number of prospective student inquiries, applications and registrations for similar programs, results from surveys/focus groups of existing students, graduates, or professionals in the field (include information about domestic vs. international student interest)*
- *Societal need:*
  - ➢ *including evidence of the need for graduates of the program and in which fields (within academic, public, and/or private sectors);*
  - ➢ *employment opportunities for prospective graduates, indicating at least three occupations in which graduates from this proposed program may be employed, selecting at least one using the Ontario Job Futures website and one from the Government of Canada Labour Market Trends website; you may also wish to review the Durham Workforce Authority website and provide any relevant sector portfolio or local/community impact information;*
  - ➢ *for professional programs, a description of the program's congruence with current regulatory requirements*
  - ➢ *note if any employers in the area support the need for this program and include a letter(s) of support as an additional appendix*

The automotive industry in Canada and globally is undergoing rapid transformation driven by:

- Electrification and EV adoption
- Autonomous and connected vehicle technologies
- Advanced materials and lightweighting
- Digital engineering and simulation

Industry demand for engineers with specialized automotive expertise continues to grow. According to labour market data from the Government of Canada Job Bank, Ontario Job Futures, and the Durham Workforce Authority, employment opportunities in automotive and mobility engineering are expected to remain strong over the next 5–10 years.

Ontario is Canada's automotive hub, with major OEMs, Tier-1 suppliers, and emerging EV and mobility companies requiring engineers with advanced skillsets.

The proposed GDip targets:

- Practicing engineers needing upskilling in EVs and advanced systems
- Professionals transitioning into automotive roles
- Recent graduates seeking a short, industry-focused credential.

- *Describe how the program is distinct from other programs at Ontario Tech. Is it reasonable to anticipate this program might affect enrolment in other related programs? If so, how might this be addressed?*

The GDip in Advanced Automotive Engineering is distinct from existing programs at Ontario Tech because:

- It allows targeted specialization without committing to a full degree
- It leverages existing graduate courses while offering flexible entry points

The program is not expected to negatively impact enrolment in existing programs. Instead, it is expected to:

- Serve as a feeder into MASc/MEng programs
- Attract new students who would not otherwise enroll.

- *Is this a new area of study? Please explain:*

The Graduate Diploma in Advanced Automotive Engineering is not a new area of study at Ontario Tech University. The Faculty of Engineering and Applied Science has an established strength in automotive engineering, supported by existing undergraduate, MASc, and MEng programs. The proposed GDip builds upon this foundation by leveraging existing graduate-level automotive courses and faculty expertise.

However, the GDip represents a new credential format that addresses a gap in the current program offerings by providing a short, flexible, and stackable option for professionals and recent graduates seeking targeted upskilling in advanced automotive technologies. It expands the University's offerings by introducing a professionally focused pathway aligned with emerging industry needs in electrification, autonomous systems, and software-defined vehicles, without duplicating existing degree programs.

- *Identify similar or complementary programs offered by other universities with specific reference to Ontario and Canadian examples.*
- *Provide additional overall comment on the justification for any duplication*

While MEng and MASc programs in Automotive Engineering exist (e.g., Ontario Tech), there is no direct equivalent GDip in Ontario, making this offering unique.

5 Enrolment Information

- *Please complete Table 1 and provide, in paragraph form, information regarding enrolment projections*
- *Please determine the academic year when the program enrollment will reach a steady-state and add an asterisk (*) in the corresponding box beside the number*
- *This table should reflect normal estimated program length. (Table may be adjusted as necessary.)*

Table 1: Projected Enrollment by Academic and Program Year

	Academic Year					
	2026-2027	2027-2028	2028-2029	2029-2030	2030-2031	2031-2032
Level of Study						
Diploma year 1	10	10	20*	20	20	20
Total Enrollment	10	10	20	20	20	20

Projected enrollment would initially be around 5-10 students per year. The planned steady-state is 20 students per year. Note these directed offerings may be offered in alternate formats other than the traditional 12-week semester.

6 Admission Requirements

Outline the formal admission requirements as they will appear in the Academic Calendar

Minimum Academic Requirements for Graduate Diploma Programs:

- Hold a four-year honours degree or its equivalent from a recognized institution in the area of graduate study or a closely related subject.
- A minimum B-minus average (GPA: 2.7 on a 4.3 scale).
- Applicants that have a degree in subject areas outside of engineering or those who do not meet the minimum GPA requirements, but have relevant engineering experience will be evaluated on an individual case-by-case basis.

- *Explain how the program's admission requirements are appropriate for the program objectives and program learning outcomes: How will they help to ensure students are successful? How do they align with the learning outcomes of the program?*
- *Explain in detail any additional requirements for admission to the program such as minimum grade point average, special language, portfolio, etc. (and how the program recognizes prior work or learning experience, if applicable)*
- *Indicate the programs from which students may be drawn*

Graduates from any Canadian accredited undergraduate engineering program (or its equivalent) will be eligible to enrol in the GDip, including: Automotive Engineering, Manufacturing Engineering, Mechanical Engineering and Mechatronics Engineering.

To provide applicants looking to re-skill for the automotive sector the potential opportunity to do the GDip in Advanced Automotive Engineering, applicants from non-engineering programs or those who do not meet the minimum GPA requirements will be considered on a case-by-case basis.

7 Program Requirements, Learning Outcomes, Degree Level Expectations (DLEs), and Program Structure

Participate in program learning outcome (PLO) development sessions and complete the PLO mapping document to describe what the student will know or be able to do by the end of the program and how that knowledge or skill will be demonstrated; include the mapping document as an appendix; refer to the new PLOs and PLO mapping document to complete the questions in this section.

Please see Appendix A for a list of the Program Learning Outcomes, Degree Level Expectations, Courses, and Assessments.

Discuss how the design, structure, requirements, and delivery of the program are appropriate for the program learning outcomes, program outcomes, and Degree Level Expectations. Guidance on program objectives and program-level learning outcomes, including examples, is available here. Be sure to include the following in your response:

- *The sequencing of required courses or other learning activities*
- *The mode of delivery of the program (is this an online or hybrid program?)*
- *Will the program be offered full-time and/or part-time; what is the program length for both full-time and part-time students; how will the program requirements reasonably be completed within the proposed time?*
- *A clear indication of how faculty scholarship and research is integrated; for researched-focused graduate programs, provide a clear indication of the nature and suitability of the major research requirements for degree completion; for professional graduate programs, how an understanding of research in this area will be reflected in curriculum and/or assessment*
- *How the program will be administered*
- *The unique curriculum or program innovations or creative components in this program*
- *The ways in which the curriculum addresses the current state of the discipline*
- *If the program is to be accredited, include with the above details about the accreditation requirements and add the accreditation tables, if available, as an additional Appendix*

The program consists of four (4) graduate-level courses totaling 12 credit hours, selected from the list below.

- ENGR 5300G – Automotive Engineering
- ENGR 5310G – Advanced Vehicle Dynamics
- ENGR 5320G – Automotive Aerodynamics
- ENGR 5330G – Automotive Powertrains
- ENGR 5340G – Automotive Noise, Vibrations and Harshness
- ENGR 5350G – Automotive Materials and Manufacturing
- ENGR 5005G – Special Topics*

* Registration in Special Topics course(s) are subject to approval by the Graduate Program Director, must be relevant to the GDip program scope, and must be confirmed as enabling the student to meet the program learning outcomes and degree-level expectations for the graduate diploma.

Courses are offered in a hybrid format and may be taken over one year full-time or part-time over a longer period.

The curriculum is designed to provide:

- Core understanding of vehicle systems
- Advanced modeling and simulation skills
- Exposure to industry-relevant engineering problems

Sequencing is flexible to accommodate both full-time students and working professionals.

Delivery mode for the courses will be hybrid. In addition to the traditional 12- week semester delivery, the courses may be delivered in compressed time formats to meet the needs of industry partners.

To facilitate access to all potential students, part-time studies are permitted. In particular, engineers in industry may wish to pursue a graduate diploma program through part-time studies.

The courses available in the program cover the state-of-the-art in advanced automotive engineering and are taught by instructors with subject matter expertise.

All course deliverables will be designed to ensure that the students are meeting the program learning outcomes and support the achievement of Graduate Degree Level Expectations. Assessments will not only measure content knowledge but also foster advanced competencies expected at the graduate level.

Provide evidence that each graduate student is required to take a minimum of two-thirds of the course requirements from among graduate-level courses

All courses that are required for the GDip are graduate level.

Describe how the principles of Equity, Diversity, Inclusion, and Decolonization have been considered:

- *Does the program contain concepts, materials, or resources from scholars/professionals who are part of one or more historically marginalized groups?*
- *Are multiple perspectives represented in the program, such as those offered by those who are Indigenous, Black, Persons of Colour, and/or 2SLGBTQIA+?*
- *How has accessibility been considered? More specifically, have the needs of*

students with disabilities been integrated into the program design (e.g., the way that students are asked to demonstrate their learning)? Please provide information beyond the services offered by Student Accessibility Services

- *Discuss how the program structure and delivery reflect universal design for teaching and learning and how the potential need to provide mental or physical health accommodations have been considered; describe how the program structure and delivery methods promote student well-being and resiliency and any elements that support a sense of community in the program*
- *Will this program provide space to allow for the discussion of other viewpoints outside the "dominant, Western narrative"?*

The Faculty of Engineering and Applied Science (FEAS) is fully committed to Equity, Diversity, and Inclusion (EDI), including in all its courses and all its research activities. The material covered in this program considers the development of automotive and mobility systems that serve the public, so it is critical that EDI considerations are incorporated into the development of these systems, in particular ensuring these systems are accessible for all users. The courses, where appropriate, will cover these issues to ensure that students understand the importance of designing accessible systems.

As an example of its focus on EDI, FEAS has the Women in Engineering Society with the following goals:

- We foster a welcoming and engaging space for female engineering students to create a sense of community on and off campus.
- We connect female students to future employers and engineering career opportunities across Canada, and showcase successful female engineering professionals.
- We equip our students with professional skills, connections, and inspiration to prepare them for their professional careers.
- We give back to the community by running outreach events to encourage and inspire young women to pursue an education in engineering.

In addition to the above, FEAS's Engineering Outreach offers programs targeting Indigenous and black students to inspire and encourage them to pursue engineering.

For students who have accommodation needs, existing Student Accessibility Services (SAS) supports will be available to students who require specific accommodations.

Does this Program contain any Indigenous content? ☐ Yes ☒ No ☐ Unsure

For more information on how Indigenous content is defined at Ontario Tech University and how to consult with the Indigenous Education Advisory Circle (IEAC), please refer to the Protocol for Consultation with the Indigenous Education Advisory Circle.

Has the IEAC been contacted ☐ Yes ☒ No If yes, when? N/A

What was the advice you received from the IEAC, and how has it been included in your proposal?

N/A

Did the IEAC ask you to return the proposal to them for review? ☐ Yes ☐ No

If yes, have they completed their review? ☐ Yes ☐ No ☐ N/A

Is there an experiential learning component (e.g. workplace learning, co-op, internship, field placements, service learning, mandatory professional practice) to the program? If yes, please describe this component in 2500 words or less. Include confirmed partners, duration of the experiential learning component(s), and projected number of placements (where applicable) and provide letters of support.

N/A

8 Assessment of Teaching and Learning

Using examples from the PLO mapping document, address the following. Please see Guidance on Assessment of Teaching and Learning and speak with the Teaching and Learning Centre (TLC) for advice on how to satisfy these criteria.

- *Appropriateness of the proposed methods for the assessment of student achievement of the intended program learning outcomes and Degree Level Expectations*
- *Describe plans for documenting and demonstrating:*
  - ➢ *The overall quality of the program*
  - ➢ *Whether the program is achieving in practice its proposed objectives;*
  - ➢ *Whether the students are achieving the program learning outcomes and a level of performance consistent with the Degree Level Expectations; and*
  - ➢ *How the resulting information will used to inform continuous program improvement*

The learning outcomes for the program are achieved through a combination of graduate-level course work, including assignments, exams, projects, and presentations.

Learning activities and materials in graduate courses will be carefully designed to ensure that learners are deliberately exposed to study, the majority of which is at, or informed by, the forefront of engineering theory and practice.

The courses have been designed to give students key knowledge in advanced automotive engineering as well as an opportunity for advanced development of generic skills such as communication and teamwork. In addition, there will be scholarly activities of independent investigation, report writing, and presentations.

Throughout the curriculum, learning activities are planned, and student progress will be monitored to ensure that safety, professional guidelines, and ethical responsibilities relevant to engineering are modelled, developed, and evaluated.

The courses available in the program cover the state-of-the-art in advanced automotive engineering and are taught by instructors with subject matter expertise.

Student feedback surveys will be completed at the end of each course delivery to gather feedback. As well student performance in each course will be monitored yearly. The Graduate Program Director responsible for the program will review both the student feedback surveys and the student performance to ensure that the program is meeting its goals. Insights from these surveys and reviews will be documented and used to identify specific areas for improvement, inform curriculum adjustments, and guide enhancements to teaching and learning strategies.

Any required changes to curriculum, assessment methods, delivery, or administration are implemented as appropriate and feasible at the discretion of the Faculty Dean. Curricular changes are then submitted and documented through appropriate Faculty and University committees consistent with standard curricular change policies and procedures as identified in the IQAP.

To ensure sustained quality, program effectiveness will be assessed and monitored through the cyclical review process, providing actionable insights for continuous improvement. In addition to the external review every eight years, Ontario Tech's Academic Resource Committee (ARC) requires a brief report at program launch and a full report one-year after the launch of a new program. The one-year report will ask the program to review enrollment data, admission averages, and provide an analysis

of successes and challenges encountered in the first year. If there are areas of concern and it is deemed necessary, ARC will make recommendations to enhance program effectiveness and student success and may request a subsequent report. If If required, the subsequent report will address key curricular and student data (e.g., GPA, retention data, etc.) as well as any outstanding recommendations from the one-year report. Pending the ARC's review, further documentation may be required of the program for ongoing monitoring.

9 Calendar Copy and Program Map(s)

- *Provide, as an Appendix using the template provided, a clear and full calendar copy. The template ensures consistency across all programs in the Academic Calendar*
- *Provide, as an Appendix, a full list of all courses included in the program including course numbers, titles, and descriptions. Please indicate clearly whether the courses are new/existing. Include full new course proposals for new courses, the template for which will be provided by CIQE. Include the most recent course descriptions for existing courses. If you are making changes to the existing courses, also include a course change form. In an Appendix referenced in Section 11 below, you will note which faculty members are expected to teach in the program and who is responsible for developing any new courses.*

Please see Appendix B for the Calendar Copy and Appendix C for the List of Program Courses and Descriptions.

10 Consultation

- *Describe the expected impact of the new program on the nature and quality of other programs delivered by the home and collaborating Faculty(ies) and any expected impact on programs offered by other Faculties*
- *Outline the process of consultation with the Deans of Faculties that will be implicated or affected by the creation of the proposed program*
- *Provide letters of support for the program from Deans at Ontario Tech and/or from other institutions/partners*
- *Describe any consultation undertaken with regard to the principles of Equity, Diversity, Inclusion, and Decolonization not covered in Section 7 above*

The Graduate Diploma in Advanced Automotive Engineering is designed to complement existing MASc and MEng programs within the Faculty. The program leverages existing graduate courses and faculty expertise, ensuring efficient use of

resources without duplication.

The program enhances Ontario Tech's leadership in automotive engineering and supports industry demand for advanced, specialized training.

The Office of the Registrar and the School of Graduate and Postdoctoral Studies were both consulted in the development of this program. No issues were raised.

As noted above, there will be no impact on other programs offered at Ontario Tech.

11 Resource Requirements

Resource Summary
Provide a brief summary *statement of the funding requirements and the rationale. Please consult with the Provost's Office early regarding any resource implications described in this section.*

As the program is leveraging the existing automotive engineering graduate courses, it is anticipated there will be no major resource requirements. By leveraging existing graduate course offerings, the GDip enhances resource efficiency without diminishing the quality of graduate offerings.

The resource requirements outlined in Section 11 have been reviewed by the Academic Resource Committee (ARC): 9 December 2025
(date of review)

11.1 Human Resource Requirements

Faculty – New and Existing Requirements
Complete, as an Appendix, the table detailing the list of faculty committed to the program and provide, in paragraph form below, the following:

- *Clear evidence that faculty have the recent research or professional/clinical expertise needed to sustain the program, promote innovation, and foster an appropriate intellectual climate*
- *Additional information to demonstrate how supervisory loads are distributed in light of qualifications and appointment status, if not clear from the table*

- *Evidence of the participation of a sufficient number and quality of faculty who will actively participate in the delivery of (teach and/or supervise) the program and achieve the goals of the program and foster the appropriate academic*

environment, contribute substantively to the program, and commit to student mentoring

- *Describe the role of any sessional/part-time faculty and any adjunct faculty; provide an approximate percentage used in the delivery of the program and the plans to ensure the sustainability of the program and quality of the student experience*
- *Explain the provision of supervision of any experiential learning opportunities; how will supervisory loads be distributed?*

Provide the CVs of all faculty who appear in the table of faculty committed to the program. These CVs should form a separate document with a table of contents and should have all CVs in alphabetical order by surname. CVs should be submitted in a consistent format.

The program will be delivered by a group of faculty members with expertise in automotive systems, including powertrains, vehicle dynamics, materials, and control systems. Core faculty will be supported by additional faculty and sessional instructors as needed to ensure coverage across all course offerings and maintain flexibility in delivery.

Experiential learning is embedded within course-based projects, including modeling, simulation, and system-level design activities. These projects replicate real-world automotive engineering workflows and provide hands-on experience without requiring formal placements.

Please see Appendix D Faculty Information for a table detailing the list of faculty committed to the program and separate file for Curriculum Vitae (provided to the Quality Council for review).

Are additional faculty required to be able to offer this program? ☐ Yes ☒ No

Please explain, i.e. Why would new faculty not be required? Would this change over time? What year will the faculty hire be required, and are there additional criteria associated with the hiring requirement (e.g. enrolment levels, program growth, University or Faculty priorities)?

Since the course delivery will leverage the existing automotive engineering graduate course offerings, no additional human resources will be required, unless the number

of students enrolled reaches the point where more than one section of a given course needs to be offered. Details and timing of proposed hirings are coordinated and confirmed with the Provost's Office through regular operational conversations.

N/A

Additional Academic and Non-Academic Human Resources

Give details regarding the nature and level of TA support required by the program, the level of administrative (i.e. new program director appointment), and academic advising support, etc. If new staff resources are needed, provide further details below.

No TAs will be required unless the enrolment is large enough to warrant it.

Are additional staff required to be able to offer this program? ☐ Yes ☒ No

If yes, please outline what year the staff hire(s) will be required and any additional criteria associated with the hiring requirement (e.g. enrolment levels, program growth, University or Faculty priorities):

N/A

11.2 Learning Resources

Provide an opening statement to describe the resources to sustain the quality of scholarship and research activities of undergraduate and graduate students, enhance the learning and teaching environment, promote student well-being and resiliency in the learning and teaching environment; refer as noted to the two standard Appendices.

The program will leverage existing institutional resources and targeted supports, including access to modern facilities, technology-enabled classrooms, and research infrastructure. Dedicated student services, academic advising, and wellness initiatives will promote student well-being and resiliency, ensuring a supportive and inclusive learning environment.

Please see Appendix E for a University statement concerning Learning Resources.

11.3 Information Technology

Provide a summary of evidence that there are adequate information technology resources to sustain the quality of scholarship and research activities of undergraduate and graduate students; address any unique requirements including renovations to

existing space, Faculty-specific space/equipment, etc.; are there additional technology requirements specific to being able to successfully launch this program? Refer as noted to the standard Appendix.

The institution provides robust information technology resources to support high-quality scholarship and research activities for both undergraduate and graduate students. These include access to modern computing facilities, high-speed networks, secure data storage, and discipline-specific software to enhance teaching and learning. Existing spaces are equipped with technology-enabled classrooms and research infrastructure ensuring the program can be successfully implemented and sustained.

Please see Appendix F for a University statement concerning information technology services.

Supporting information for online and hybrid programs

Where applicable, please provide the following details for online and hybrid programs:

- *Describe the adequacy of the technological platform to be used for online delivery*
- *Describe how the quality of education will be maintained*
- *Describe how the program objectives will be met*
- *Describe how the program learning outcomes will be met*
- *Describe the support services and training for teaching staff that will be made available*
- *Describe the sufficiency and type of supports that will be available to students*
- *How has accessibility been considered?*
- *What strategies have been considered to accommodate students with disabilities?*
- *Have the principles of Universal Design been considered?*
- *Will course content be offered in both written and audible forms (e.g., closed captioning, transcriptions)?*
- *Is course content designed logically and is it easy to follow with limited instruction?*
- *Are assignment expectations clear (i.e., a rubric)?*
- *Have the needs of students with limited or unreliable access to wi-fi been considered (e.g., breaking down pre-recorded lectures into maximum 10-minute videos)?*

The program will leverage existing University IT infrastructure. Ontario Tech is a laptop university where students bring their own laptop devices and are provided access to a software portal where they can download any necessary software required for their courses, including a variety of engineering specific packages such as SolidWorks, NX, Multisim, MATLAB, Adams, and Nastran.

The hybrid delivery of the courses will make use of Ontario Tech's flexible hybrid classrooms that allow for synchronous delivery with active participation from students both in room and online and the ability for all students to see all other students.

11.4 Financial Support for Graduate Students

Provide evidence that financial assistance for students, including TA-ships where applicable, will be sufficient to ensure adequate quality and numbers of students.

No financial assistance will be provided as this is a professional program.

11.5 Space and Infrastructure Requirements

- *Provide evidence that there are adequate resources to sustain the quality of scholarship and research activities of undergraduate and graduate students, including information about laboratory and research space access, where applicable, and office space; address any unique requirements*
- *Highlight the change in the number of faculty, students, administrative staff, etc. as well as information on changes in equipment and activities; renovation of existing space; or whether the current space allocation will accommodate the new program*
- *Are there additional space requirements specific to being able to successfully launch this program?*

The hybrid delivery of the courses and the leveraging with the automotive engineering graduate course delivery will have minimal impact on classroom requirements.

No additional space requirements are required.

11.6 Other Resource Implications

- *Note here if this new program may impact enrolment agreements with other institutions/external partners that exist with the Faculty/Provost's office. Indicate if the new program will require changes to any existing agreements with other institutions or will require the creation of a new agreement. Please consult with CIQE (ciqe@ontariotechu.ca) regarding any implications to existing or new agreements*
- *Are there inter-Faculty teaching implications?*

- *If this is a new joint program with another institution, indicate how the program will be administered and how program reviews will be conducted (refer to the Ontario Tech Institutional Quality Assurance Process Policy for more information)*

The program does not impact any existing agreements Ontario Tech has with institutional and external partners. In addition, there are no inter-Faculty implications.

12 Closing Statements Regarding Program Quality

- *Please summarize the appropriateness of the faculty's collective expertise and how it contributes substantively to the proposed program; use indicators to provide evidence of the quality of the faculty (e.g., qualifications, funding, honours, awards, research, innovation, and scholarly record).*
- *Please summarize how the program and faculty will ensure the intellectual quality of the student experience.*

The Graduate Diploma in Advanced Automotive Engineering is supported by faculty with strong expertise in vehicle systems, powertrains, dynamics, materials, and control systems. The Faculty of Engineering and Applied Science has an established track record in delivering high-quality automotive engineering education and research.

The program leverages existing courses, laboratories, and industry-relevant tools to ensure a high-quality student experience. Through a combination of advanced coursework, applied learning, and industry-aligned content, the program prepares graduates to contribute effectively to the rapidly evolving automotive and mobility sector.

Appendices

Please include at minimum the below. Additional Appendices may be added, as appropriate. Appendices should ultimately be listed below, attached as separate documents, and clearly labelled (A, B, C, etc.) in the order in which they are first mentioned in the document.

Appendix A: Program Learning Outcome Alignment Map to DLEs, Courses, and Assessments
Appendix B: Calendar Copy
Appendix C: List of Program Courses and Descriptions for Existing Courses
Appendix D: Faculty Information
Appendix E: Learning Resources
Appendix F: Information Technology Resources

Items to be separate documents sent to CIQE:

New Program Funding and Tuition form (for CIQE use only)
Budget Spreadsheet (for ARC use only)
Curriculum Vitae (for Quality Council use only)

Graduate Diploma – Advanced Automotive Engineering

PLO #	Program Learning Outcomes
PLO 1	Analyze Theoretical Foundations: Critically evaluate foundational theory, concepts, and principles that underpin advanced engineering design and development in modern automotive systems.
PLO 2	Develop and Evaluate Engineering Solutions: Design, analyze, and evaluate engineering solutions using systematic and analytical approaches to address complex automotive engineering challenges.
PLO 3	Apply Knowledge in a Practical Context: Utilize advanced knowledge from mechanical, electrical, software, or related engineering disciplines to solve complex real-world automotive engineering problems.
PLO 4	Communicate Effectively in Diverse Communities: Communicate complex automotive engineering concepts clearly to both technical and non-technical audiences.
PLO 5	Assess Ethical, Societal and Environmental Impacts: Evaluate ethical considerations, limitations of knowledge, and the societal and environmental impacts of automotive technologies.

Graduate Diploma – Advanced Automotive Engineering

Graduate Degree Level Expectations		Depth and Breadth of Knowledge				Research and Scholarship				Level of Application of Knowledge			Professional Capacity/ Autonomy			Level of Communucation Skills			Awareness of Knowledge Limits		
Program Learning Outcomes		PLO1	PLO2			PLO1	PLO3			PLO2	PLO3		PLO2	PLO5		PLO2	PLO4		PLO3	PLO5	
Course No.	**Course Title**																				
ENGR 5300G	Automotive Engineering		7				7			7	7		4	4		7	7		7	7	
ENGR 5310G	Advanced Vehicle Dynamics	4	4			4	4, 7			4	2,7,3		7	4		7	2,7,3		2,7,3	2,7,3	
ENGR 5320G	Automotive Aerodynamics	4	4			4	4, 7			4	2,7,3		7	4		7	2,7,3		2,7,3	2,7,3	
ENGR 5330G	Automotive Powertrains		7				7			7	7		7			7	3		7		
ENGR 5340G	Automotive Noise, Vibrations and Harshness		2				7			2	7		7			7	3		3, 7		
ENGR 5350G	Automotive Materials and Manufacturing	2,4	3, 7			2, 4	2,4			3, 7	2,4		3, 7			3, 7	3, 7		3, 7		

Degee of Implementation:
Introduced
Reinforced
Mastered

Assessment Legend:			
1	Test/Quizz	5	Essay
2	Exam (example)	6	Thesis
3	Presentation	7	Group/individual project
4	Assignment	8...	(Add additional rows as needed)

Advanced Automotive Engineering, Graduate Diploma

General Information

The Graduate Diploma (GDip) in Advanced Automotive Engineering provides students with specialized knowledge in modern vehicle systems and emerging automotive technologies. The automotive sector is undergoing rapid transformation driven by electrification, autonomous systems, connectivity, and software-defined vehicle architectures. As a key contributor to the Canadian economy, the automotive industry continues to evolve toward sustainable and intelligent mobility solutions.

Designed for recent graduates and industry professionals holding an undergraduate engineering degree, the Graduate Diploma in Advanced Automotive Engineering equips learners with advanced, industry-relevant skills needed to enter or advance within the automotive and mobility sectors. Through four hybrid graduate courses, students develop expertise in key areas of automotive engineering, including electric powertrains, vehicle dynamics, noise-vibration-harshness (NVH), materials and manufacturing, and aerodynamics.

This program prepares graduates to meet the growing demand for engineers with advanced knowledge in next-generation automotive systems and mobility technologies.

Admission Requirements

In addition to the general admission requirements for graduate studies, applicants must meet the following program-specific requirements:

Minimum Academic Requirements for Graduate Diploma Programs:

- Hold a four-year honours degree or its equivalent from a recognized institution in the area of engineering or a closely related subject.
- A minimum B-minus average (GPA: 2.7 on a 4.3 scale).
- Applicants that have a degree in subject areas outside of engineering or those who do not meet the minimum GPA requirements, but have relevant engineering experience will be evaluated on an individual case-by-case basis.

Graduates from any Canadian accredited undergraduate engineering program (or its equivalent) will be eligible to enrol in the GDip, including: Automotive Engineering, Manufacturing Engineering, Mechanical Engineering and Mechatronics Engineering.

Note, the consideration of applicants from non-engineering programs or those who do not meet the minimum GPA requirements is to provide applicants seeking to re-skill for the automotive and mobility sector the opportunity to pursue the GDip in Advanced Automotive Engineering.

Part-time studies

To facilitate access to all potential students, part-time studies are permitted. In particular, engineers in industry may wish to pursue a graduate diploma program through part-time studies.

Graduate diploma requirements

For the graduate diploma, students must complete the four courses below for a total of 12 credits.

Note: Graduate diploma students are not permitted to take courses outside of their home program course listings for program credit. In addition, they may not take any senior fourth-year undergraduate courses from the Faculty of Engineering and Applied Science in lieu of a graduate course.

Course listings

Students must complete four courses selected from the following:

- ENGR 5005G: Special Topics*****
- ENGR 5300G: Automotive Engineering
- ENGR 5310G: Advanced Vehicle Dynamics
- ENGR 5330G: Automotive Powertrains
- ENGR 5340G: Automotive Noise, Vibrations and Harshness
- ENGR 5350G: Automotive Materials and Manufacturing
- ENGR 5320G: Automotive Aerodynamics

*****upon approval by Graduate Program Director and relevant to the scope.

Program learning outcomes

The following outcomes outline the knowledge and skills students will have achieved upon completion of the program.

Program Learning Outcomes - Advanced Automotive Engineering, Graduate Diploma

Appendix C - List of Program Courses and Course Descriptions

List of Program Courses

The program consists of four graduate-level courses (12 credits total), selected from the following:

Course Code	Course Name	
ENGR 5300G	Automotive Engineering	Existing Course - course description enclosed
ENGR 5310G	Advanced Vehicle Dynamics	Existing Course - course description enclosed
ENGR 5320G	Automotive Aerodynamics	Existing Course - course description enclosed
ENGR 5330G	Automotive Powertrains	Existing Course - course description enclosed
ENGR 5340G	Automotive Noise, Vibrations and Harshness	Existing Course - course description enclosed
ENGR 5350G	Automotive Materials and Manufacturing	Existing Course - course description enclosed

ENGR 5300G - Automotive Engineering
Components of the automobile. Engineering factors in all components and subsystem areas of automobile design. Vehicle characteristics and dynamic interactions. Systems modelling approach and mathematical models for ride, vibration, handling control and powertrains of automobiles. Tire mechanics including construction, rolling resistances, traction/braking properties, cornering and aligning properties and measurement methods. Vehicle mobility, motion performance of the vehicle, characterization of resistances, propulsion system and tractive efforts. Brake system design, braking performance and brake distribution. Steady state handling. Measurement methods. Suspension system design considerations. Design and performance of an automobile from a systems point of view. External factors such as markets, financing and sales.

ENGR 5310G - Advanced Vehicle Dynamics
Introduction to transport systems related to vehicle dynamics behaviour. Pneumatic tire mechanics ride, cornering and aligning properties. Transient and steady-state directional dynamics and handling analyses of road vehicles. Directional response and stability analysis in small and large perturbation maneuvers, roll dynamics and rollover, braking performance analyses, directional responses to simultaneous steering and braking inputs, and performance measures. Characterization of road roughness, ride vibration analyses and assessment of ride comfort. Measurement methods and data analyses techniques. Vehicle-driver interactions analysis of the closed loop vehicle-driver system. Introduction to typical control strategies for vehicle dynamic control.

ENGR 5320G - Automotive Aerodynamics
Formulation of fluid mechanics and aerodynamics for automotive design. Inviscid and viscous flow. Wind tunnels and their applications to external aerodynamics. Aerodynamic drag coefficient and its effect on vehicle performance. Experimental methods, drag force measurements and wind tunnel instrumentation. Computational aerodynamics. Comparisons between experimental results and numerical results. Aerodynamic design for drag reduction. Aerodynamics of engine cooling. Fluid structure interactions. Aerodynamic noise.

ENGR 5330G - Automotive Powertrains
Design of automotive power transmission systems. Loads on the vehicle. Evaluation of various engine and vehicle drive ratios on acceleration performance and fuel economy. Manual transmission and automatic transmission. Combustion in CI and SI engines. Selection of combustion chamber type and shape, intake and exhaust systems. Differences between engine types. Cylinder number, configuration, size and material selection. Selection of mixture preparation and firing order. Mechanism of combustion. Fuel and additive characteristics. Fuel metering and ignition systems. Exhaust emissions and control systems. Heat transfer, friction and lubrication systems. Air pollution. Exhaust systems. Effects of emission on air quality. Sources of auto emission.

ENGR 5340G - Automotive Noise, Vibrations and Harshness
Evaluating the vibration and acoustic characteristics of automotive systems and components. Human comfort and annoyance guidelines and standards. Sound, hearing and physiological effects of noise and vibration. Modelling and experiment methods. Modal analysis and digital signal processing. Noise sources such as gears, bearings, rotating imbalance, gas flow, combustion and impact. Source-path-receiver identification. Sound transmission, airborne and structure-borne noise. Structural-acoustic interactions. Noise and vibration passive/active control.

ENGR 5350G - Automotive Materials and Manufacturing
Materials in the automotive industry. Selection of materials and shapes. Materials processing and design. Interaction of materials. Performance of materials in service. Examples of new materials. Role of environmental regulations and societal pressures on the selection of alternate materials. Manufacturing processes, including casting, forging, forming, machining and molding, for the automotive industry. Quality control and techniques, process selection and methods. Manufacturing considerations for various lightweight automotive structural materials. Stiffness, fatigue, vibrations, dent resistance and crush resistance. Methods of producing lightweight automotive structures are discussed. Design for manufacturing, assembly, disassembly and recycling.

Appendix D – Faculty Information

Please include here only those currently at the institution and affiliated with the program. Examples in purple to be removed.
Where available, link each faculty name to their Research or Profile page on the website.

Name and Faculty Status/Rank	Terminal Degree	Home Faculty/Unit	Areas of Expertise	Supervisory Privileges and Role in New Program (Note if faculty will be teaching and/or supervising in the program; indicate primary supervisor by asterisks)	Total Graduate Teaching (including New Program) (Note in bold type if faculty is a core course developer for the program)
Dr. Moustafa El-Gindy Professor	PhD	FEAS	Heavy Vehicle Dynamics, Tire Mechanics, Military Vehicle Dynamics, Ride and Handling Optimization.	Graduate Faculty* Teaching core courses	3-4 courses (undergraduate/graduate level)
Dr. Yuping He Professor	PhD	FEAS	Autonomous Driving, Vehicle System Dynamics, Vehicle Chassis Design, Vehicle Active Safety Systems, Automated Design Synthesis, Modelling and Simulation, Driver-Hardware-in-the-Loop Real-Time Simulations, Application of Multidisciplinary Design Optimization, Mechatronic Systems	Graduate Faculty* Teaching core courses	3-4 courses (undergraduate/graduate level)
Dr. Martin Agelin-Chaab Professor	PhD	FEAS	Fluid Mechanics, Aerodynamics, Turbulence and Heat Transfer, Internal Combustion Engines, Sustainable Energy Systems.	Graduate Faculty* Teaching core courses	3-4 courses (undergraduate/graduate level)
Dr. Xianke Lin Associate Professor	PhD	FEAS	Battery Management Systems, Electrified Vehicles, Multi-scale Modeling of Materials, Energy Storage, Computational Fluid Dynamics.	Graduate Faculty* Teaching core courses	3-4 courses (undergraduate/graduate level)

Dr. Atef Mohany Professor	PhD	FEAS	Aeroacoustics, Flow-Induced Vibration, Noise Control, Structural Integrity, Flow-Acoustic Coupling in Piping Systems.	Graduate Faculty* Teaching core courses	3-4 courses (undergraduate/graduate level)
Dr. Ghaus Rizvi Professor	PhD	FEAS	Polymer Processing, Composite Materials, Biocomposites, Advanced Manufacturing, Automotive Materials Performance.	Graduate Faculty* Teaching core courses	3-4 courses (undergraduate/graduate level)
Dr. Greg Rohrauer Associate Professor	PhD	FEAS	Automotive engineering; vehicle crashworthiness; structural design and analysis; impact mechanics; finite element modeling of automotive structures.	Graduate Faculty* Teaching core courses	3-4 courses (undergraduate/graduate level)
Dr. Zeinab El-Sayegh Assistant Professor	PhD	FEAS	Vehicle system dynamics; tire-soil interaction; autonomous vehicle modeling; off-road vehicle performance; physics-based simulation of vehicle systems.	Graduate Faculty* Teaching core courses	3-4 courses (undergraduate/graduate level)

Existing Non-Financial Student Support Services

School of Graduate and Post-Doctoral Studies

Quality graduate and postdoctoral education combines teaching, research, professional development, disciplinary community involvement and personal growth. It is by nature a shared responsibility between students, faculty members, the programs and a large number of support units, with overarching administration being provided by the School of Graduate and Postdoctoral Studies.

The School of Graduate and Postdoctoral Studies (SGPS) furthers the scholarly mission of the university by providing academic and administrative support to the university's postgraduate educational, research, innovation and international activities. Our responsibilities include graduate program development, graduate enrolment management, oversight of academic and quality standards, and the implementation of policies and practices that enhance graduate/postdoctoral scholarly success, career readiness and personal growth. SGPS supports prospective, new and current graduate students through many administrative services including, but not limited to, recruitment, admission, registration, funding and scholarships, orientation, professional development workshops and events, and processing of final theses, projects and papers. SGPS is a single-point-of-contact, multifunctional administrative unit tailored to the complete "life-cycle" of graduate students, providing coordinated support to students and all other stakeholders.

Student Life

Ontario Tech University, as a relatively small campus community, has a centralized delivery model for many student supports. All undergraduate students have access to an extensive support system that ensures a quality student experience. Each Faculty may provide additional, Faculty- or program-specific supports. In addition to the outlined services below, students may also take advantage of the Campus Bookstore, Housing and Living Resources as well as the Ontario Tech Student Union. Further information can be found at: http://studentlife.ontariotechu.ca/.

Student Learning Centre

Ontario Tech University fosters a high level of academic excellence by working with students, undergraduate and graduate, to achieve educational success. Faculty specific academic resources are available online and include tip sheets and videos. Academic specialists offer one-on-one support services in mathematics, writing, study skills, ESL and physics. With the additional support of peer tutors and workshops, the Student Learning Centre can also accommodate the needs of a specific course or program.

Student Accessibility Services

Ontario Tech University ensures that students with disabilities have equal opportunities for academic success. Student Accessibility Services operates under the

Ontario Human Rights Code and the Accessibility for Ontarians with Disabilities Act. Services and accommodation support are provided for students with documented disabilities and include:

- Adaptive technology training
- Alternate format course material
- Learning skills support
- Testing support
- Transition support for incoming students

Student Accessibility Services also provides inclusive peer spaces, support groups, and skills workshops for students.

Career Readiness

Ontario Tech University offers comprehensive career service assistance, co-op and internship support and a variety of valuable resources to help students along their career paths, including:

- Assistance with creating effective job-search documents
- Career counselling
- Co-op and internships
- Interview preparation
- Job market information
- Job search strategies

The Career Centre hosts a variety of events during the academic year including employer information and networking sessions, job fairs and interviews conducted by leading employers.

Student Engagement, Equity and Inclusion, and ***Indigenous Education and Cultural Services***

The university supports students' successful transition and provides opportunities to develop leadership and professional skills throughout their university career. Services provided include:

- Equity and inclusivity programming and support groups
- Indigenous Education and Cultural Services provides space and supports for students to connect with Indigenous culture and resources
- Opportunities to grow and develop leadership skills through the Ambassador and Peer Mentorship program
- Orientation and events through first year
- Peer mentoring
- Services and supports for international and exchange students

- Specialized programming for first-generation, graduate, Indigenous, international, mature, online, transfer and diploma-to-degree pathways students

Student Mental Health Services

Student Mental Health Services helps students learn how to better manage the pressures of student life. Students can:

- Access short term counselling and therapy services
- Access tools and resources online to learn about mental health and how to maintain good health and wellness
- Attend drop-in sessions
- Participate in events, activities or support groups that promote positive health and well-being
- Work with a mental health professional to address concerns

Students in distress will also be provided with support and counselling as needed. There is no cost to students and services are confidential. For those who need long-term counselling support or specialized mental health services, Ontario Tech University will provide referrals to assist the student in accessing resources in the local community or in the student's home community.

Athletics and Recreation Facilities

Ontario Tech University offers a number of recreation facilities and fitness opportunities to meet all lifestyles and needs. On-campus facilities include the state-of-the-art FLEX Fitness Centre which overlooks Oshawa Creek, five gymnasiums, a 200-metre indoor track, two aerobic/dance studios, the Campus Ice Centre, Campus Fieldhouse, a soccer pitch, a fastball diamond, squash courts and an indoor golf training centre. Students are able to participate in varsity and intramural sports as well as group fitness classes and personal training sessions.

Campus Health Centre

The Campus Health Centre provides assistance in numerous confidential health-care options including:

- A medical clinic with daily access to physician and nursing staff
- Treatment of disease, illness, and injury
- Allergy injections, immunizations, and influenza injections
- Complementary Health Services featuring acupuncture, chiropractic, custom orthotics, massage therapy, nutritional counselling, and physical therapy
- An on-site laboratory (blood work, STI testing, throat swabs, etc.)
- Gynaecological health-care and prescriptions

Student Awards and Financial Aid

Student Awards and Financial Aid (SAFA) is dedicated to helping students understand the variety of options available to finance their education. Budgeting and financial planning are essential to their success and SAFA is on hand to help create the right financial plan. Financial assistance can be in the form of bursaries, employment (both on-campus and off), parental resources, scholarships, student lines of credit and the Ontario Student Assistance Program (OSAP).

Teaching & Learning Centre

The mission of the Teaching and Learning Centre (TLC) at Ontario Tech University is to empower faculty to reach their potential as educators and to create a culture where effective teaching is valued. We champion the scholarship of teaching and implementation of pedagogy. We create valuable teaching and learning professional development experiences. We move Ontario Tech University towards being a leader in teaching excellence, ultimately leading to greater student success.

The TLC provides faculty with a range of tools and facilities to assist them in providing a rich learning experience for students. Experts at the TLC provide support in various areas including curriculum development, multimedia design, learning technology and in the overall improvement of teaching practice.

In addition, the TLC funds teaching-related projects from the Teaching Innovation Fund (TIF) for proposals by faculty members aimed at developing new methods in teaching and learning. The TLC facilitates teaching awards at the University and supports faculty in their application for external awards and funding opportunities that focus on teaching and learning.

Campus Libraries

The Campus Libraries support teaching, learning, and research at Ontario Tech University with facilities, collections, and programming.

Library Collections:

- The Library's total collections budget is $1.7 million.
- Collections include books, e-books, databases, journals, data and statistics, and multimedia materials

Support for teaching and learning:

- A dedicated librarian for each program who provides instruction, research consultations, and collection development
- Research guides for each of Ontario Tech's programs, as well as general guides for citation, copyright, and other broad topics
- Workshops and classes: custom in-class sessions, and general instruction sessions

- Three (3) online modules in Ontario Tech's learning management system, which professors can integrate seamlessly into their course shells

Research supports:

- Research consultations with subject librarians
- Extended support via the Library's virtual reference service
- Support for generative artificial intelligence: citation, copyright, and allowable use of library resources

Scholarly publishing supports:

- Research data management
- Publishing compliance with Tri-Council and other funders
- Support finding and creating open educational resources (OERs)
- Copyright advice and compliance information
- Support for authors, including reviewing author agreements
- Administration of APC waivers for faculty publishing in open access

Facilities:

- The Campus Libraries include the North Oshawa Library, which is the campus' main branch, and the Social Sciences, Humanities, and Education Library, which is located in downtown Oshawa
- The Library's locations include:
    - Extended library hours are available during peak season
    - Groups study rooms are available for student booking
    - Accessible workstations, and sit-stand desks
    - Computers and dual monitor workstations

Information Technology Resources

Ontario Tech University is a leader among North American universities in implementing and using curriculum and industry specific software in a technology-enriched learning environment (TELE). Our unique environment is adapted to each discipline based on faculty requirements and input for optimal student learning. We are committed to providing the greatest value for students' investment in education and technology while studying at Ontario Tech University.

One of the greatest advantages of Ontario Tech University's approach to TELE is that all students have equal access to the same technology, resources and services. Whether you are inside or outside of the classroom, your course-specific software allows you to work on your own or with others and enjoy seamless access to all Ontario Tech online resources. TELE supports Bring-your-own-device (BYOD) which provides you with laptop standards when acquiring the right laptop for your program and software support services onsite and online. An annual fee for TELE covers a wide range of program-specific software, technical software support, exam support and virus protection.

IT Services strives to provide quality services to students at Ontario Tech. To support these objectives, the following components are included:

Wireless network
Wireless internet connection is available in public areas and open-air locations around the Ontario Tech campus where students congregate (North Oshawa and Downtown locations).

Wired network
To ensure the success of the technology-enriched learning environment, a comprehensive data network has been installed on campus. This includes network drops in lecture halls and designated areas as well as network drops for each residence suite.

Ontario Tech students benefit from networked classrooms and learning spaces. Each ergonomically-designed space has data network connection access and electrical connections to ensure battery regeneration. In addition, classrooms include electronic projection equipment and full multimedia support.

Exam support services
IT Services provide hardware, software and technical support during examinations. IT team will be equipped with loaner laptops in the event of major technical issues.

Laptop repairs
IT Services provide on campus repairs on eligible laptop models.

IT Service Desk

The IT Service Desk is equipped with certified technicians and experienced IT professionals offering technical support services on a drop-in, call-in or email basis.

General Use Workstations (GUWs)
Ontario Tech undergraduate students are able to use general workstations available at the library and have access to Bring Your Own Device Technology-Enriched Learning Environment (BYOD TELE) model course-specific software.

Software Support
Software Support specialists are available to students on-site and online to assist in downloading/installing University software and support any other software related issues.

Printing services
Printing services are available to students in the following areas: labs, classrooms, study common areas, the Learning Commons and the Library. All Ontario Tech students receive print credits every year, more Printpacks can be purchased through the Campus Bookstore if students require additional printing services.

Full name of proposed program (as it will appear on the student's transcript): (e.g., Master of Arts in Education; Master of Science in Applied Bioscience)	Graduate Diploma in Advanced Robotics
Degree designation and short form: (e.g., Master of Arts, M.A.; Master of Science, M.Sc.)	GDip
Cost recovery program:	☐Yes ☒No
Professional program:	☒Yes ☐No
For graduate diplomas:	☐Type 2 ☒Type 3
Faculty offering the program: (i.e., where the program will be housed/site of academic authority)	Faculty of Engineering and Applied Science
Collaborating Faculty(ies) (if applicable):	N/A
Collaborating institution(s) (if applicable):	N/A
Program delivery location:	Ontario Tech North Campus and Hybrid
Proposed program start date (please change as needed):	Fall 2027
Program proponent/contact:	Xianke Lin
Version date (please change as you edit this proposal):	May 14, 2026
Date of Academic Council Approval:	

New Graduate Program Proposal

The program proposal and accompanying documents must address the purpose and content of the new program and the capacity of the unit to deliver a high-quality program. This template is for all proposals for new graduate programs and aligns with Ontario Tech Institutional Quality Assurance Process (IQAP) requirements and, together with the required supporting documents, will help to ensure that all evaluation criteria established by the Quality Council are addressed. All sections of the template are required.

Brief **description of the proposed program[1]:** (NOTE: Text box is formatted to limit the description to 1000 characters or less. This description should be identical to the 'Program Abstract' on page one of the proposal.)

The robotics and automation sector is rapidly expanding, driven by advances in artificial intelligence, autonomous systems, and Industry 4.0 technologies. Canada's innovation ecosystem increasingly relies on engineers with expertise in robotic systems, intelligent control, and real-time implementation. The Graduate Diploma in Advanced Robotics is designed for recent graduates and industry professionals with engineering backgrounds who seek to develop specialized skills in robotics and intelligent automation. Delivered through four hybrid courses, the program provides training in robotic manipulators, mobile robotics, control systems, and AI-enabled decision-making. Students gain hands-on experience in modelling, simulation, and system integration, preparing them for careers in industrial automation, autonomous systems, aerospace, medical robotics, and advanced manufacturing.

[1] NOTE: Following the Quality Council's approval of the proposed program, the QA Secretariat will seek confirmation from the University that this description is appropriate to post on the Quality Council's website (Approved Programs — Ontario Universities Council on Quality Assurance (oucqa.ca))

New Graduate Program Proposal

Graduate Diploma in Advanced Robotics
Faculty of Engineering and Applied Science

1 Program Abstract

Please provide a brief overview of the proposed program, summarizing the key points, to be shared with the public, in 1000 characters or less. You may wish to include:

- *A clear statement of the purpose of the program (who is it for, what are the outcomes)*
- *Any program components, such as fields, pathways, or micro-credentials (note that fields, pathways, and micro-credentials are not required)*
- *Nature of the learning environment, noting any distinctive elements, including alternative modes of delivery (including online)*

Note that this statement will be used on a standalone basis and is for external purposes; what do you want potential students/advisors to know about this program? (You may wish to complete this section last.)

The robotics and automation sector is rapidly expanding, driven by advances in artificial intelligence, autonomous systems, and Industry 4.0 technologies. Canada's innovation ecosystem increasingly relies on engineers with expertise in robotic systems, intelligent control, and real-time implementation. The Graduate Diploma in Advanced Robotics is designed for recent graduates and industry professionals with engineering backgrounds who seek to develop specialized skills in robotics and intelligent automation. Delivered through four hybrid courses, the program provides training in robotic manipulators, mobile robotics, control systems, and AI-enabled decision-making. Students gain hands-on experience in modelling, simulation, and system integration, preparing them for careers in industrial automation, autonomous systems, aerospace, medical robotics, and advanced manufacturing.

2 Academic Rationale

- *Identify what is being proposed, clearly state the program objectives, and provide an academic rationale for the proposed program (what is being created and why?)*

- *Explain the appropriateness of the program name and degree nomenclature, particularly as they relate to the program objectives*
- *Describe the mode of delivery (in-class, hybrid, online) and any work-integrated learning; outline how the delivery and components are appropriate to support students in achieving the Degree Level Expectations, program outcomes, and Program Learning Outcomes*
- *Discuss how the program addresses the current state of the discipline or area of study*
- *Describe the ways in which the program fits into the broader array of program offerings within the Faculty and the University*
- *Describe any unique curriculum or program innovations, creative components, or significant high impact practice*

The Graduate Diploma in Advanced Robotics is designed for engineers and technical professionals seeking advanced expertise in robotic systems, automation, and intelligent control. The program builds on Ontario Tech's established strengths in mechatronics and robotics by leveraging existing graduate-level courses and faculty expertise.

The program consists of four (4) graduate courses (12 credit hours), including core courses in robotic manipulators and mobile robotics, complemented by electives in advanced control, embedded systems, artificial intelligence, and automation.

The program is delivered in a hybrid format and emphasizes applied, project-based learning through modelling, simulation, and system-level design. Graduate-level deliverables focus on solving real-world robotics challenges in areas such as autonomy, perception, and intelligent control.

The program name and nomenclature accurately reflect its focus on advanced, multidisciplinary robotics education.

Innovative features include:

- Integration of robotics, control, and AI-based decision-making
- Emphasis on real-time implementation and system integration
- Flexible elective structure aligned with industry needs

The program addresses rapid technological advancements in robotics, including autonomous systems, AI-enabled robotics, and intelligent manufacturing.

Describe any fields and/or any pathways from related programs. (Graduate programs are not required to have fields in order to highlight an area of strength or specialization within a program, nor are they required to provide specific pathways from programs at the college, bachelor, or other level.)

N/A

3 University Mission, Vision, Integrated Academic and Research Plan, and Strategic Mandate Agreement

- *Detail the consistency of the program objectives with the Mission, Vision, Integrated Academic and Research Plan, and Strategic Mandate Agreement*
- *Describe how the program contributes to the University's Mission and Vision*
- *Explain how the program aligns with the goals and priorities outlined in the Faculty's(ies') and University's Integrated Academic and Research Plan*
- *Is this program consistent with the mandate of the sector? (i.e. technically/vocationally/theoretically/academically oriented for universities) Identify how the program fits within one or more areas of strength or growth in Ontario Tech University's Strategic Mandate Agreement*

The Graduate Diploma in Advanced Robotics aligns with Ontario Tech University's mission to provide innovative, technology-driven education that responds to market needs.

Robotics is a key enabler of sustainable and intelligent systems across industries, including manufacturing, transportation, healthcare, and aerospace. The program supports the university's vision of "embracing technology with a conscience" by addressing ethical, societal, and sustainability aspects of automation and intelligent systems.

The program contributes to preparing graduates to solve complex, multidisciplinary problems involving sensing, control, and decision-making in autonomous systems.

It strengthens Ontario Tech's strategic focus on advanced manufacturing, digital technologies, and intelligent systems, and reinforces the university's leadership in robotics and mechatronics engineering.

4 Need, Demand, and Duplication

Provide evidence of the need and demand for the program and how this has been determined, focusing on:

- *Student interest:*
  - *including number of prospective student inquiries, applications and registrations for similar programs, results from surveys/focus groups of existing students, graduates, or professionals in the field (include information about domestic vs. international student interest)*
- *Societal need:*
  - *including evidence of the need for graduates of the program and in which fields (within academic, public, and/or private sectors);*
  - *employment opportunities for prospective graduates, indicating at least three occupations in which graduates from this proposed program may be employed, selecting at least one using the Ontario Job Futures website and one from the Government of Canada Labour Market Trends website; you may also wish to review the Durham Workforce Authority website and provide any relevant sector portfolio or local/community impact information;*
  - *for professional programs, a description of the program's congruence with current regulatory requirements*
  - *note if any employers in the area support the need for this program and include a letter(s) of support as an additional appendix*

Robotics and automation are rapidly transforming industries across Canada and globally, including manufacturing, logistics, healthcare, aerospace, and mobility.

Key drivers include:

- Industry 4.0 and smart manufacturing
- Autonomous vehicles and robotics
- AI-enabled perception and control
- Labour shortages in automation-intensive sectors

Labour market data (Ontario Job Futures, Government of Canada, Durham Workforce Authority) indicates strong demand for engineers with robotics and automation expertise over the next 5–10 years.

The program targets:

- Engineers seeking upskilling in robotics and AI
- Professionals transitioning into automation and autonomy
- Recent graduates pursuing robotics careers

- *Describe how the program is distinct from other programs at Ontario Tech. Is it reasonable to anticipate this program might affect enrolment in other related programs? If so, how might this be addressed?*

The GDip is distinct because:

- It provides targeted specialization without a full degree commitment
- It integrates robotics, control, and AI in a single program

While related programs exist (e.g., MEng Robotics at Western, UofT), there is no equivalent GDip in Ontario, making this offering unique.

- *Is this a new area of study? Please explain:*

The Graduate Diploma in Advanced Robotics is not a new area of study at Ontario Tech. The university has established strengths in mechatronics, control systems, and robotics through existing undergraduate and graduate programs. The GDip builds on this foundation by introducing a focused, professionally oriented credential that enables targeted upskilling in advanced robotics technologies.

- *Identify similar or complementary programs offered by other universities with specific reference to Ontario and Canadian examples.*
- *Provide additional overall comment on the justification for any duplication*

In Ontario, related offerings include the University of Toronto’s MEng Emphasis in Robotics and Collaborative Specialization in Robotics, and Western University’s graduate-level Robotics and Control area. These programs demonstrate strong academic and labour-market demand for robotics training, but they differ from the proposed GDip in Advanced Robotics because they are generally embedded within full master’s or doctoral degree pathways rather than offered as a short, stackable graduate diploma.

The proposed GDip is differentiated by its focused four (4) course structure, hybrid delivery, professional orientation. It is intended for students and professionals who require targeted upskilling in robotic manipulators, mobile robotics, control, embedded systems, and AI-enabled robotics without initially committing to a full graduate degree.

The proposed program does not represent unnecessary duplication. Existing Ontario programs confirm demand for robotics education but are primarily degree-based, research-stream, or college-level credentials. The proposed GDip fills a distinct gap by offering a university-level, professionally focused, stackable credential in advanced robotics. It complements Ontario Tech's existing strengths in mechatronics, robotics, control, and intelligent systems while providing a flexible pathway for working professionals and recent graduates seeking targeted graduate-level training.

5 Enrolment Information

- *Please complete Table 1 and provide, in paragraph form, information regarding enrolment projections*
- *Please determine the academic year when the program enrollment will reach a steady-state and add an asterisk (*) in the corresponding box beside the number*
- *This table should reflect normal estimated program length. (Table may be adjusted as necessary.)*

Table 1: Projected Enrollment by Academic and Program Year

	Academic Year					
	2026-2027	**2027-2028**	**2028-2029**	**2029-2030**	**2030-2031**	**2031-2032**
Level of Study						
Diploma year 1	10	10	20*	20	20	20
Total Enrollment	10	10	20	20	20	20

Projected enrollment would initially be around 5-10 students per year. The planned steady-state is 20 students per year. Note these directed offerings may be offered in alternate formats other than the traditional 12-week semester.

6 Admission Requirements

Outline the formal admission requirements as they will appear in the Academic Calendar

Minimum Academic Requirements for Graduate Diploma Programs:

- Hold a four-year honours degree or its equivalent from a recognized institution in the area of graduate study or a closely related subject.
- A minimum B-minus average (GPA: 2.7 on a 4.3 scale).
- Applicants that have a degree in subject areas outside of engineering or those who do not meet the minimum GPA requirements, but have relevant engineering experience will be evaluated on an individual case-by-case basis.

- *Explain how the program's admission requirements are appropriate for the program objectives and program learning outcomes: How will they help to ensure students are successful? How do they align with the learning outcomes of the program?*
- *Explain in detail any additional requirements for admission to the program such as minimum grade point average, special language, portfolio, etc. (and how the program recognizes prior work or learning experience, if applicable)*
- *Indicate the programs from which students may be drawn*

Graduates from any Canadian accredited undergraduate engineering program (or its equivalent) will be eligible to enrol in the GDip, including: Mechanical Engineering, Mechatronics Engineering, Software Engineering, Automotive Engineering, Electrical Engineering, Energy Engineering, Industrial Engineering, and Manufacturing Engineering.

To provide applicants looking to re-skill for the advanced robotics sector the potential opportunity to do the GDip in Advanced Robotics, applicants from non-engineering programs or those who do not meet the minimum GPA requirements will be considered on a case-by-case basis.

7 Program Requirements, Learning Outcomes, Degree Level Expectations (DLEs), and Program Structure

Participate in program learning outcome (PLO) development sessions and complete the PLO mapping document to describe what the student will know or be able to do by the end of the program and how that knowledge or skill will be demonstrated; include the mapping document as an appendix; refer to the new PLOs and PLO mapping document to complete the questions in this section.

Please see Appendix A for a list of the Program Learning Outcomes, Degree Level Expectations, Courses, and Assessments.

Discuss how the design, structure, requirements, and delivery of the program are appropriate for the program learning outcomes, program outcomes, and Degree Level Expectations. Guidance on program objectives and program-level learning outcomes, including examples, is available here. Be sure to include the following in your response:

- *The sequencing of required courses or other learning activities*
- *The mode of delivery of the program (is this an online or hybrid program?)*
- *Will the program be offered full-time and/or part-time; what is the program length for both full-time and part-time students; how will the program requirements reasonably be completed within the proposed time?*
- *A clear indication of how faculty scholarship and research is integrated; for researched-focused graduate programs, provide a clear indication of the nature and suitability of the major research requirements for degree completion; for professional graduate programs, how an understanding of research in this area will be reflected in curriculum and/or assessment*
- *How the program will be administered*
- *The unique curriculum or program innovations or creative components in this program*
- *The ways in which the curriculum addresses the current state of the discipline*
- *If the program is to be accredited, include with the above details about the accreditation requirements and add the accreditation tables, if available, as an additional Appendix*

For the graduate diploma, students must complete four (4) graduate-level courses for a total of 12 credit hours. In addition to the two required core courses, students may choose two elective courses for a total of 6 credit hours from the below list.

Core (required):

- METE 5280G – Robotic Manipulators
- METE 5300G – Mobile Robotics

Electives (choose two):

- ENGR 5260G – Advanced Robotics and Automation
- ENGR 5262G – Manipulator and Mechanism Design
- ENGR 5263G – Advanced Control
- ENGR 5910G – Embedded Real-Time Control Systems
- METE 5101G – AI and Machine Learning
- METE 5102G – Control Design in Robotic Systems
- METE 5103G – Model Predictive Control
- ENGR 5005G – Special Topics*

* Registration in Special Topics course(s) are subject to approval by the Graduate Program Director, must be relevant to the GDip program scope, and must be confirmed as enabling the student to meet the program learning outcomes and degree-level expectations for the graduate diploma.

Delivery mode for the courses will be hybrid. In addition to the traditional 12-week semester delivery, the courses may be delivered in compressed time formats to meet the needs of industry partners.

To facilitate access to all potential students, part-time studies are permitted. In particular, engineers in industry may wish to pursue a graduate diploma program through part-time studies.

The courses available in the program cover the state-of-the-art in advanced robotics and are taught by instructors with subject matter expertise. The courses were developed in conjunction with subject matter experts from industry.

All course deliverables will be designed to ensure that the students are meeting the program learning outcomes and support the achievement of Graduate Degree Level

Expectations. Assessments will not only measure content knowledge but also foster advanced competencies expected at the graduate level.

Provide evidence that each graduate student is required to take a minimum of two-thirds of the course requirements from among graduate-level courses

All courses that are required for the GDip are graduate level.

Describe how the principles of Equity, Diversity, Inclusion, and Decolonization have been considered:

- *Does the program contain concepts, materials, or resources from scholars/professionals who are part of one or more historically marginalized groups?*
- *Are multiple perspectives represented in the program, such as those offered by those who are Indigenous, Black, Persons of Colour, and/or 2SLGBTQIA+?*
- *How has accessibility been considered? More specifically, have the needs of students with disabilities been integrated into the program design (e.g., the ways that students are asked to demonstrate their learning)? Please provide information beyond the services offered by Student Accessibility Services*
- *Discuss how the program structure and delivery reflect universal design for teaching and learning and how the potential need to provide mental or physical health accommodations have been considered; describe how the program structure and delivery methods promote student well-being and resiliency and any elements that support a sense of community in the program*
- *Will this program provide space to allow for the discussion of other viewpoints outside the "dominant, Western narrative"?*

The Faculty of Engineering and Applied Science (FEAS) is fully committed to Equity, Diversity, and Inclusion (EDI), including in all its courses and all its research activities. The material covered in this program considers the development of advanced robotics that serve the public, so it is critical that EDI considerations are incorporated into the development of these systems, in particular ensuring these systems are accessible for all users. The courses, where appropriate, will cover these issues to ensure that students understand the importance of designing accessible systems.

As an example of its focus on EDI, FEAS has the Women in Engineering Society with the following goals:

- We foster a welcoming and engaging space for female engineering students to create a sense of community on and off campus.

- We connect female students to future employers and engineering career opportunities across Canada, and showcase successful female engineering professionals.
- We equip our students with professional skills, connections, and inspiration to prepare them for their professional careers.
- We give back to the community by running outreach events to encourage and inspire young women to pursue an education in engineering.

In addition to the above, FEAS's Engineering Outreach offers programs targeting Indigenous and black students to inspire and encourage them to pursue engineering.

For students who have accommodation needs, existing Student Accessibility Services (SAS) supports will be available to students who require specific accommodations.

Does this Program contain any Indigenous content? ☐ Yes ☒ No ☐ Unsure

For more information on how Indigenous content is defined at Ontario Tech University and how to consult with the Indigenous Education Advisory Circle (IEAC), please refer to the Protocol for Consultation with the Indigenous Education Advisory Circle.

Has the IEAC been contacted ☐ Yes ☒ No If yes, when? N/A

What was the advice you received from the IEAC, and how has it been included in your proposal?

N/A

Did the IEAC ask you to return the proposal to them for review? ☐ Yes ☐ No

If yes, have they completed their review? ☐ Yes ☐ No ☐ N/A

Is there an experiential learning component (e.g. workplace learning, co-op, internship, field placements, service learning, mandatory professional practice) to the program? If yes, please describe this component in 2500 words or less. Include confirmed partners, duration of the experiential learning component(s), and projected number of placements (where applicable) and provide letters of support.

N/A

8 Assessment of Teaching and Learning

Using examples from the PLO mapping document, address the following. Please see Guidance on Assessment of Teaching and Learning and speak with the Teaching and Learning Centre (TLC) for advice on how to satisfy these criteria.

- *Appropriateness of the proposed methods for the assessment of student achievement of the intended program learning outcomes and Degree Level Expectations*
- *Describe plans for documenting and demonstrating:*
  - *The overall quality of the program*
  - *Whether the program is achieving in practice its proposed objectives;*
  - *Whether the students are achieving the program learning outcomes and a level of performance consistent with the Degree Level Expectations; and*
  - *How the resulting information will used to inform continuous program improvement*

The learning outcomes for the program are achieved through a combination of graduate-level course work, including assignments, exams, projects, and presentations.

Learning activities and materials in graduate courses will be carefully designed to ensure that learners are deliberately exposed to study, the majority of which is at, or informed by, the forefront of engineering theory and practice.

The courses have been designed to give students key knowledge in advanced robotics as well as an opportunity for advanced development of generic skills such as communication and teamwork. In addition, there will be scholarly activities of independent investigation, report writing, and presentations.

Throughout the curriculum, learning activities are planned, and student progress will be monitored to ensure that safety, professional guidelines, and ethical responsibilities relevant to engineering are modelled, developed, and evaluated.

The courses available in the program cover the state-of-the-art in advanced robotics and are taught by instructors with subject matter expertise. The courses were developed in conjunction with subject matter experts from industry.

Student feedback surveys will be completed at the end of each course delivery to gather feedback. As well student performance in each course will be monitored

yearly. The Graduate Program Director responsible for the program will review both the student feedback surveys and the student performance to ensure that the program is meeting its goals. Insights from these surveys and reviews will be documented and used to identify specific areas for improvement, inform curriculum adjustments, and guide enhancements to teaching and learning strategies.

Any required changes to curriculum, assessment methods, delivery, or administration are implemented as appropriate and feasible at the discretion of the Faculty Dean. Curricular changes are then submitted and documented through appropriate Faculty and University committees consistent with standard curricular change policies and procedures as identified in the IQAP.

To ensure sustained quality, program effectiveness will be assessed and monitored through the cyclical review process, providing actionable insights for continuous improvement. In addition to the external review every eight years, Ontario Tech's Academic Resource Committee (ARC) requires a brief report at program launch and a full report one-year after the launch of a new program. The one-year report will ask the program to review enrollment data, admission averages, and provide an analysis of successes and challenges encountered in the first year. If there are areas of concern and it is deemed necessary, ARC will make recommendations to enhance program effectiveness and student success and may request a subsequent report. If If required, the subsequent report will address key curricular and student data (e.g., GPA, retention data, etc.) as well as any outstanding recommendations from the one-year report. Pending the ARC's review, further documentation may be required of the program for ongoing monitoring.

9 Calendar Copy and Program Map(s)

- *Provide, as an Appendix using the template provided, a clear and full calendar copy. The template ensures consistency across all programs in the Academic Calendar*
- *Provide, as an Appendix, a full list of all courses included in the program including course numbers, titles, and descriptions. Please indicate clearly whether the courses are new/existing. Include full new course proposals for new courses, the template for which will be provided by CIQE. Include the most recent course descriptions for existing courses. If you are making changes to the existing courses, also include a course change form. In an Appendix referenced in Section 11 below,*

you will note which faculty members are expected to teach in the program and who is responsible for developing any new courses.

Please see Appendix B for the Calendar Copy and Appendix C for the List of Program Courses and Descriptions.

10 Consultation

- *Describe the expected impact of the new program on the nature and quality of other programs delivered by the home and collaborating Faculty(ies) and any expected impact on programs offered by other Faculties*
- *Outline the process of consultation with the Deans of Faculties that will be implicated or affected by the creation of the proposed program*
- *Provide letters of support for the program from Deans at Ontario Tech and/or from other institutions/partners*
- *Describe any consultation undertaken with regard to the principles of Equity, Diversity, Inclusion, and Decolonization not covered in Section 7 above*

The Graduate Diploma in Advanced Robotics is designed to complement, rather than compete with, existing programs within the Faculty and across the University. The program leverages existing mechatronics graduate course offerings and faculty expertise, ensuring efficient use of resources without duplication.

The Office of the Registrar and the School of Graduate and Postdoctoral Studies were both consulted in the development of this program. No issues were raised.

As noted above, there will be no impact on other programs offered at Ontario Tech.

11Resource Requirements

Resource Summary
Provide a brief summary *statement of the funding requirements and the rationale. Please consult with the Provost's Office early regarding any resource implications described in this section.*

As the program is leveraging the existing mechatronics engineering graduate courses, it is anticipated there will be no major resource requirements. By leveraging existing

mechatronics engineering graduate course offerings, the GDip enhances resource efficiency without diminishing the quality of graduate offerings.

The resource requirements outlined in Section 11 have been reviewed by the Academic Resource Committee (ARC): 9 December 2025
(date of review)

11.1 Human Resource Requirements

Faculty – New and Existing Requirements
Complete, as an Appendix, the table detailing the list of faculty committed to the program and provide, in paragraph form below, the following:

- *Clear evidence that faculty have the recent research or professional/clinical expertise needed to sustain the program, promote innovation, and foster an appropriate intellectual climate*
- *Additional information to demonstrate how supervisory loads are distributed in light of qualifications and appointment status, if not clear from the table*
- *Evidence of the participation of a sufficient number and quality of faculty who will actively participate in the delivery of (teach and/or supervise) the program and achieve the goals of the program and foster the appropriate academic environment, contribute substantively to the program, and commit to student mentoring*
- *Describe the role of any sessional/part-time faculty and any adjunct faculty; provide an approximate percentage used in the delivery of the program and the plans to ensure the sustainability of the program and quality of the student experience*
- *Explain the provision of supervision of any experiential learning opportunities; how will supervisory loads be distributed?*

Provide the CVs of all faculty who appear in the table of faculty committed to the program. These CVs should form a separate document with a table of contents and should have all CVs in alphabetical order by surname. CVs should be submitted in a consistent format.

The program will be delivered by a group of faculty members with expertise in advanced robotics, including robotic systems, control systems, embedded systems, artificial intelligence, and autonomous systems. Core faculty will be supported by additional faculty and sessional instructors as needed to ensure coverage across all course offerings and maintain flexibility in delivery.

Experiential learning is embedded within course-based projects, including modelling, simulation, and system-level design activities that reflect real-world robotics applications.

Please see Appendix D Faculty Information for a table detailing the list of faculty committed to the program and separate file for Curriculum Vitae (provided to the Quality Council for review).

Are additional faculty required to be able to offer this program? ☐ Yes ☒ No

Please explain, i.e. Why would new faculty not be required? Would this change over time? What year will the faculty hire be required, and are there additional criteria associated with the hiring requirement (e.g. enrolment levels, program growth, University or Faculty priorities)?

Since the course delivery will leverage the mechatronics engineering graduate course offerings, no additional human resources will be required, unless the number of students enrolled reaches the point where more than one section of a given course needs to be offered. Details and timing of proposed hirings are coordinated and confirmed with the Provost's Office through regular operational conversations.

N/A

Additional Academic and Non-Academic Human Resources

Give details regarding the nature and level of TA support required by the program, the level of administrative (i.e. new program director appointment), and academic advising support, etc. If new staff resources are needed, provide further details below.

No TAs will be required unless the enrolment is large enough to warrant it.

Are additional staff required to be able to offer this program? ☐ Yes ☒ No

If yes, please outline what year the staff hire(s) will be required and any additional criteria associated with the hiring requirement (e.g. enrolment levels, program growth, University or Faculty priorities):

N/A

11.2 Learning Resources

Provide an opening statement to describe the resources to sustain the quality of scholarship and research activities of undergraduate and graduate students, enhance the learning and teaching environment, promote student well-being and resiliency in the learning and teaching environment; refer as noted to the two standard Appendices.

The program will leverage existing institutional resources and targeted supports, including access to modern facilities, technology-enabled classrooms, and research infrastructure. Dedicated student services, academic advising, and wellness initiatives will promote student well-being and resiliency, ensuring a supportive and inclusive learning environment.

Please see Appendix E for a University statement concerning Learning Resources.

11.3 Information Technology

Provide a summary of evidence that there are adequate information technology resources to sustain the quality of scholarship and research activities of undergraduate and graduate students; address any unique requirements including renovations to existing space, Faculty-specific space/equipment, etc.; are there additional technology requirements specific to being able to successfully launch this program? Refer as noted to the standard Appendix.

The institution provides robust information technology resources to support high-quality scholarship and research activities for both undergraduate and graduate students. These include access to modern computing facilities, high-speed networks, secure data storage, and discipline-specific software to enhance teaching and learning. Existing spaces are equipped with technology-enabled classrooms and research infrastructure ensuring the program can be successfully implemented and sustained.

Please see Appendix F for a University statement concerning information technology services.

Supporting information for online and hybrid programs

Where applicable, please provide the following details for online and hybrid programs:

- *Describe the adequacy of the technological platform to be used for online delivery*
- *Describe how the quality of education will be maintained*

- *Describe how the program objectives will be met*
- *Describe how the program learning outcomes will be met*
- *Describe the support services and training for teaching staff that will be made available*
- *Describe the sufficiency and type of supports that will be available to students*
- *How has accessibility been considered?*
- *What strategies have been considered to accommodate students with disabilities?*
- *Have the principles of Universal Design been considered?*
- *Will course content be offered in both written and audible forms (e.g., closed captioning, transcriptions)?*
- *Is course content designed logically and is it easy to follow with limited instruction?*
- *Are assignment expectations clear (i.e., a rubric)?*
- *Have the needs of students with limited or unreliable access to wi-fi been considered (e.g., breaking down pre-recorded lectures into maximum 10-minute videos)?*

The program will leverage existing University IT infrastructure. Ontario Tech is a laptop university where students bring their own laptop devices and are provided access to a software portal where they can download any necessary software required for their courses, including a variety of engineering specific packages such as SolidWorks, NX, Multisim, MATLAB, Adams, and Nastran.

The hybrid delivery of the courses will make use of Ontario Tech's flexible hybrid classrooms that allow for synchronous delivery with active participation from students both in room and online and the ability for all students to see all other students.

11.4 Financial Support for Graduate Students

Provide evidence that financial assistance for students, including TA-ships where applicable, will be sufficient to ensure adequate quality and numbers of students.

No financial assistance will be provided as this is a professional program.

11.5 Space and Infrastructure Requirements

- *Provide evidence that there are adequate resources to sustain the quality of scholarship and research activities of undergraduate and graduate students, including information about laboratory and research space access, where applicable, and office space; address any unique requirements*
- *Highlight the change in the number of faculty, students, administrative staff, etc. as well as information on changes in equipment and activities; renovation of*

existing space; or whether the current space allocation will accommodate the new program
- *Are there additional space requirements specific to being able to successfully launch this program?*

The hybrid delivery of the courses and the leveraging with the mechatronics engineering graduate course delivery will have minimal impact on classroom requirements.

No additional space requirements are required.

11.6 Other Resource Implications

- *Note here if this new program may impact enrolment agreements with other institutions/external partners that exist with the Faculty/Provost's office. Indicate if the new program will require changes to any existing agreements with other institutions or will require the creation of a new agreement. Please consult with CIQE (ciqe@ontariotechu.ca) regarding any implications to existing or new agreements*
- *Are there inter-Faculty teaching implications?*
- *If this is a new joint program with another institution, indicate how the program will be administered and how program reviews will be conducted (refer to the Ontario Tech Institutional Quality Assurance Process Policy for more information)*

The program does not impact any existing agreements Ontario Tech has with institutional and external partners. In addition, there are no inter-Faculty implications.

12 Closing Statements Regarding Program Quality

- *Please summarize the appropriateness of the faculty's collective expertise and how it contributes substantively to the proposed program; use indicators to provide evidence of the quality of the faculty (e.g., qualifications, funding, honours, awards, research, innovation, and scholarly record).*
- *Please summarize how the program and faculty will ensure the intellectual quality of the student experience.*

The Graduate Diploma in Advanced Robotics is supported by faculty with expertise in robotics, control systems, embedded systems, and artificial intelligence. The program

leverages existing courses, laboratories, and research strengths to deliver a high-quality learning experience.

Through advanced coursework and applied learning, the program prepares graduates to contribute to the rapidly evolving robotics and automation sector across multiple industries.

Appendices

Please include at minimum the below. Additional Appendices may be added, as appropriate. Appendices should ultimately be listed below, attached as separate documents, and clearly labelled (A, B, C, etc.) in the order in which they are first mentioned in the document.

Appendix A: Program Learning Outcome Alignment Map to DLEs, Courses, and Assessments
Appendix B: Calendar Copy
Appendix C: List of Program Courses and Descriptions for Existing Courses
Appendix D: Faculty Information
Appendix E: Learning Resources
Appendix F: Information Technology Resources

Items to be separate documents sent to CIQE:
New Program Funding and Tuition form (for CIQE use only)
Budget Spreadsheet (for ARC use only)
Curriculum Vitae (for Quality Council use only)

Graduate Diploma – Advanced Robotics

PLO #	Program Learning Outcomes
PLO 1	Explain core and applied concepts, principles, and techniques in robotics and mechatronics.
PLO 2	Analyze and interpret experimental data and computational results related to robotic systems.
PLO 3	Apply engineering methods to solve practical problems in robotics and mechatronic systems.
PLO 4	Apply professional, ethical, and safety standards in engineering practice.
PLO 5	Recognize the importance of lifelong learning and identify pathways for continued professional development.
PLO 6	Communicate technical information effectively in written and oral formats.
PLO 7	Evaluate technical information and apply it appropriately in engineering practice.

Graduate Diploma – Advanced Robotics

Graduate Degree Level Expectations		Depth and Breadth of Knowledge				Research and Scholarship				Level of Application of Knowledge			Professional Capacity/ Autonomy			Level of Communucation Skills			Awareness of Knowledge Limits		
Program Learning Outcomes		PLO1	PLO3			PLO2	PLO7			PLO3	PLO7		PLO4	PLO5		PLO6			PLO5	PLO7	
Course No.	**Course Title**																				
METE 5280G	Robotic Manipulators	1,2	1,2,4			1,4	1,4			1,2,4	1,4					3				1,4	
METE 5300G	Mobile Robotics	1,2	1,2,4			1,4	1,4			1,2,4	1,4		1,4	3		3			3	1,4	
ENGR 5260G	Advanced Robotics and Automation	1,2	1,2,4			1,4	1,4			1,2,4	1,4		1,4	3		3			3	1,4	
ENGR 5262G	Manipulator and Mechanism Design	1,2	1,2,4			1,4	1,4			1,2,4	1,4					3				1,4	
ENGR 5263G	Advanced Control	1,2	1,2			1,4	1,4			1,2,4	1,4					3				1,4	
ENGR 5910G	Embedded Real-Time Control Systems	1,2	1,2,4			1,4	1,4			1,2,4	1,4		1,4			3				1,4	
ENGR 5930G	Adaptive Control	1,2	1,2			1,4	1,4			1,2,4	1,4					3				1,4	
ENGR 5915G	Discrete Time Control Systems	1,2	1,2			1,4	1,4			1,2,4	1,4					3				1,4	
METE 5101G	Artificial Intelligence and Machine Learning Methods and Applications	1,2	1,2,4			1,4	1,4			1,2,4	1,4		1,4	3		3			3	1,4	
METE 5102G	Control Design in Robotic Systems	1,2	1,2,4			1,4	1,4			1,2,4	1,4					3				1,4	
METE 5103G	Model Predictive Control	1,2	1,2,4			1,4	1,4			1,2,4	1,4					3				1,4	
METE 5104G	Multivariable Feedback Control	1,2	1,2			1,4	1,4			1,2,4	1,4					3				1,4	
METE 5105G	Nonlinear Control Systems	1,2	1,2			1,4	1,4			1,2,4	1,4					3				1,4	

Degee of Implementation:
Introduced
Reinforced
Mastered

Assessment Legend:	
1	Assignments
2	Exam (example)
3	Presentation
4	Project

Advanced Robotics, Graduate Diploma

General Information

The Graduate Diploma (GDip) in Advanced Robotics provides students with specialized knowledge in robotic systems, intelligent automation, and autonomous technologies. Robotics is a rapidly growing field driven by advancements in artificial intelligence, sensing, control systems, and Industry 4.0 technologies. Across sectors such as manufacturing, healthcare, transportation, aerospace, and logistics, robotics plays a critical role in improving efficiency, safety, and innovation.
Designed for recent graduates and industry professionals holding an undergraduate engineering degree, the Graduate Diploma in Advanced Robotics equips learners with advanced, industry-relevant skills needed to enter or advance within robotics and automation-focused careers. Through four hybrid graduate courses, students develop expertise in robotic manipulators, mobile robotics, control systems, and AI-enabled decision-making.
This program prepares graduates to meet the growing demand for engineers with specialized expertise in robotics, automation, and intelligent systems.

Admission Requirements

In addition to the general admission requirements for graduate studies, applicants must meet the following program-specific requirements:

Minimum Academic Requirements for Graduate Diploma Programs:

- Hold a four-year honours degree or its equivalent from a recognized institution in the area of engineering or a closely related subject.
- A minimum B-minus average (GPA: 2.7 on a 4.3 scale).
- Applicants that have a degree in subject areas outside of engineering or those who do not meet the minimum GPA requirements, but have relevant engineering experience will be evaluated on an individual case-by-case basis.

Graduates from any Canadian accredited undergraduate engineering program (or its equivalent) will be eligible to enroll in the GDip, including: Mechanical Engineering, Mechatronics Engineering, Electrical Engineering, Computer Engineering, Software Engineering, and Manufacturing Engineering.

Note, the consideration of applicants from non-engineering programs or those who do not meet the minimum GPA requirements is to provide applicants seeking to re-skill for robotics and automation sectors the opportunity to pursue the GDip in Advanced Robotics.

Part-time studies

To facilitate access to all potential students, part-time studies are permitted. In particular, engineers in industry may wish to pursue a graduate diploma program through part-time studies.

Graduate diploma requirements

For the graduate diploma, students must complete four courses for a total of 12 credits, including METE 5280G: Robotic Manipulators, METE 5300G: Mobile Robotics, and two elective courses from the below list.

Note: Graduate diploma students are not normally permitted to take courses outside of their home program course listings for program credit. In addition, they may not take any senior fourth-year undergraduate courses from the Faculty of Engineering and Applied Science in lieu of a graduate course. If either core course has been completed at the undergraduate level, it will be replaced with an elective course, subject to Graduate Program Director approval.

Course listings

Core courses:

- METE 5280G: Robotic Manipulators
- METE 5300G: Mobile Robotics

Elective courses:

- ENGR 5005G: Special Topics*****
- ENGR 5260G: Advanced Robotics and Automation
- ENGR 5262G: Manipulator and Mechanism Design
- ENGR 5263G: Advanced Control
- ENGR 5910G: Embedded Real-Time Control Systems
- ENGR 5930G: Adaptive Control
- ENGR 5915G: Discrete Time Control Systems
- METE 5101G: Artificial Intelligence and Machine Learning Methods and Applications
- METE 5102G: Control Design in Robotic Systems
- METE 5103G: Model Predictive Control
- METE 5104G: Multivariable Feedback Control
- METE 5105G: Nonlinear Control Systems

*****upon approval by Graduate Program Director and relevant to the scope.

Program learning outcomes

The following outcomes outline the knowledge and skills students will have achieved upon completion of the program.

Program Learning Outcomes - Advanced Robotics, Graduate Diploma

Appendix C - List of Program Courses and Course Descriptions

List of Program Courses

The program consists of four graduate-level courses (12 credits total), selected from the following:

Required Courses		
Course Code	**Course Name**	
METE 5280G	Robotic Manipulators	Existing Course - course description enclosed
METE 5300G	Mobile Robotics	Existing Course - course description enclosed
Electives:		
ENGR 5260G	Advanced Robotics and Automation	Existing Course - course description enclosed
ENGR 5262G	Manipulator and Mechanism Design	Existing Course - course description enclosed
ENGR 5263G	Advanced Control	Existing Course - course description enclosed
ENGR 5910G	Embedded Real-Time Control Systems	Existing Course - course description enclosed
METE 5101G	AI and Machine Learning	Existing Course - course description enclosed
METE 5102G	Control Design in Robotic Systems	Existing Course - course description enclosed
METE 5103G	Model Predictive Control	Existing Course - course description enclosed

METE 5280G - Robotic Manipulators
Industrial robots; robot kinematics, differential kinematics; statics, dynamics and control of robot arms; noncontact and contact sensors; actuators; real-time joint control; task planning and programming of industrial robots; applications of robots.

METE 5300G - Mobile Robotics
Students will learn the basics of mobile robotics through a series of open-ended projects in a hands-on learning environment. Topics covered include: locomotion; mobile robot kinematics; perception; mapping and localization; and path planning, obstacle avoidance, and navigation.

ENGR 5260G - Advanced Robotics and Automation
This course builds upon the knowledge students have gained in a first robotics course to cover more advanced kinematics topics and their application to more complex robotic systems such as redundant manipulators and parallel mechanisms. Topics covered include point, direction, line and screw motion descriptions; homogeneous transformations; line and screw coordinates; quaternion representations; inverse displacement solutions by analytic, root finding, hybrid and numerical methods; appropriate frames of reference; screw systems and transforms; local and globally optimum solutions of redundant rates; over determined and near degenerate solutions; singularity analysis; and parallel manipulator kinematics.

ENGR 5262G - Manipulator and Mechanism Design
This course is designed to teach students the necessary skills to design or synthesize mechanisms and manipulators to perform desired tasks. Topics covered include synthesis of mechanisms for function generation, path generation and rigid body guidance; graphical, analytical and optimization based

methods of synthesis; mechanism cognates, Chebychev spacing, Burmister curves; manipulator joint layout synthesis for spatial positioning and orientation; conditions of singularity and uncertainty; and solution of nonlinear problems of kinetics involved in mechanism synthesis using compatibility equations, 1/2 angle substitutions and dialytic elimination.

ENGR 5263G - Advanced Control
This course builds upon the knowledge students have gained in a first control course to cover more materials in advanced control systems. Topics covered include a. State variables and state space models: relations between state space models and the transfer function models (controllable and observable canonical forms, and diagonal form), Jordan form, solutions of linear state equations, transition matrix. b. Controllability and observability: definition and criteria, state feedback and output feedback, pole assignment via state feedback, design of servo controlled systems. c. State estimation and observer: observer state-variable feedback control. d. Multi-input multi-output (MIMO) systems: pole assignment via state feedback. e. Introduction to nonlinear systems: describing functions for kinds of nonlinear systems (on/off, dry friction, dead one, saturation and hystersis), phase plane trajectories, concept of limit cycle. f. Stability analysis: Lyapunov function and Lyapunov stability criterion. g. Introduction to optimal control: linear quadratic regulator (LQR), Riccati equation, properties of LQR systems. h. Sampled data systems: pulse transfer function, zero and first order hold systems, stability and root locus in the z-plane, transformations, Routh Hurwitz stability criterion in the z-plane, system compensation in the z-plane using root locus and generalized PID controllers.

ENGR 5910G - Embedded Real-Time Control Systems
This course focuses on the design and implementation techniques for embedded real-time control systems. It covers embedded system design, instruction sets for microprocessor architecture, I/O, interrupts, hardware and software of embedded systems, program design and analysis, practical issues, multi-tasking operating systems, scheduling and system design techniques.

METE 5101G - Artificial Intelligence and Machine Learning Methods and Applications
In this course, students will briefly review fundamental artificial intelligence and machine learning methods such as regression methods and decision trees. Students will develop skills to implement advanced machine learning concepts through coding projects. Data transformation and management methods including kernels, principal component analysis, and manifold learning will be discussed as well as ensemble methods and reinforcement learning strategies. Different artificial neural network structures, deep learning methods, regression, and convolution networks will be presented. Heuristic methods to handle non-linear problems in the context of machine learning will be introduced.

METE 5102G - Control Design in Robotic Systems
This course deals with the topic of control design in robotic systems. Specifically, the course addresses the theories and techniques required to design controllers for robot manipulator systems. The detailed topics include: vectors/coordinate transforms, kinematics, robot dynamics, position control (such as PD control, computed torque control, adaptive control, sliding mode control, time-delayed control, disturbance observer) and force control (such as impedance control, hybrid force control). Students will design the introduced controllers and analyze robot dynamics and control performance through MATLAB/Simulink based simulations.

METE 5103G - Model Predictive Control
Model Predictive Control (MPC) theory will be introduced and developed in this project-based course. System identification modeling and control of linear and non-linear systems will be practiced with the implementation and design of different types of MPC algorithms, including: Simplified MPC, Dynamic Matrix Control, General Predictive Control and other MPC conditioning methodologies.

Appendix D – Faculty Information

Please include here only those currently at the institution and affiliated with the program. Examples in purple to be removed.
Where available, link each faculty name to their Research or Profile page on the website.

Name and Faculty Status/Rank	Terminal Degree	Home Faculty/Unit	Areas of Expertise	Supervisory Privileges and Role in New Program (Note if faculty will be teaching and/or supervising in the program; indicate primary supervisor by asterisks)	Total Graduate Teaching (including New Program) (Note in bold type if faculty is a core course developer for the program)
Dr. Scott Nokleby Professor	PhD	FEAS	Robotics, Reconfigurable Systems, Manipulator Design, Mechatronics.	Graduate Faculty* Teaching core courses	3-4 courses (undergraduate/graduate level)
Dr. Haoxiang Lang Associate Professor	PhD	FEAS	Robotics, Intelligent Control, Autonomous Systems, Machine Learning, Mechatronics.[cite: 2]	Graduate Faculty* Teaching core courses	3-4 courses (undergraduate/graduate level)
Dr. Jaho Seo Associate Professor	PhD	FEAS	Heavy-Duty Mobile Robots, Autonomous Construction Equipment, Control Systems, Human-Robot Interaction.	Graduate Faculty* Teaching core courses	3-4 courses (undergraduate/graduate level)
Dr. Meaghan Charest-Finn Assistant Professor	PhD	FEAS	Advanced Control Systems, Model Predictive Control (MPC), Optimization, Building Energy Management.	Graduate Faculty* Teaching core courses	3-4 courses (undergraduate/graduate level)
Dr. Shabnam Pejhan Assistant Professor	PhD	FEAS	Biomechatronic mobility assistive devices; smart wearables for rehabilitation; human mobility and motion analysis; biomedical technologies.	Graduate Faculty* Teaching core courses	3-4 courses (undergraduate/graduate level)
Dr. Mitchell Rushton Assistant Professor	PhD	FEAS	Cable-driven parallel robots; vibration control; continuum robots; automated warehousing and storage/retrieval systems.	Graduate Faculty* Teaching core courses	3-4 courses (undergraduate/graduate level)

Dr. Aaron Yurkewich Assistant Professor	PhD	FEAS	Assistive robotics; human-robot interaction; wearable stroke rehabilitation devices; user-centered design; haptic communication.	Graduate Faculty* Teaching core courses	3-4 courses (undergraduate/graduate level)

Existing Non-Financial Student Support Services

School of Graduate and Post-Doctoral Studies

Quality graduate and postdoctoral education combines teaching, research, professional development, disciplinary community involvement and personal growth. It is by nature a shared responsibility between students, faculty members, the programs and a large number of support units, with overarching administration being provided by the School of Graduate and Postdoctoral Studies.

The School of Graduate and Postdoctoral Studies (SGPS) furthers the scholarly mission of the university by providing academic and administrative support to the university's postgraduate educational, research, innovation and international activities. Our responsibilities include graduate program development, graduate enrolment management, oversight of academic and quality standards, and the implementation of policies and practices that enhance graduate/postdoctoral scholarly success, career readiness and personal growth. SGPS supports prospective, new and current graduate students through many administrative services including, but not limited to, recruitment, admission, registration, funding and scholarships, orientation, professional development workshops and events, and processing of final theses, projects and papers. SGPS is a single-point-of-contact, multifunctional administrative unit tailored to the complete "life-cycle" of graduate students, providing coordinated support to students and all other stakeholders.

Student Life

Ontario Tech University, as a relatively small campus community, has a centralized delivery model for many student supports. All undergraduate students have access to an extensive support system that ensures a quality student experience. Each Faculty may provide additional, Faculty- or program-specific supports. In addition to the outlined services below, students may also take advantage of the Campus Bookstore, Housing and Living Resources as well as the Ontario Tech Student Union. Further information can be found at: http://studentlife.ontariotechu.ca/.

Student Learning Centre

Ontario Tech University fosters a high level of academic excellence by working with students, undergraduate and graduate, to achieve educational success. Faculty specific academic resources are available online and include tip sheets and videos. Academic specialists offer one-on-one support services in mathematics, writing, study skills, ESL and physics. With the additional support of peer tutors and workshops, the Student Learning Centre can also accommodate the needs of a specific course or program.

Student Accessibility Services

Ontario Tech University ensures that students with disabilities have equal opportunities for academic success. Student Accessibility Services operates under the

Ontario Human Rights Code and the Accessibility for Ontarians with Disabilities Act. Services and accommodation support are provided for students with documented disabilities and include:

- Adaptive technology training
- Alternate format course material
- Learning skills support
- Testing support
- Transition support for incoming students

Student Accessibility Services also provides inclusive peer spaces, support groups, and skills workshops for students.

Career Readiness

Ontario Tech University offers comprehensive career service assistance, co-op and internship support and a variety of valuable resources to help students along their career paths, including:

- Assistance with creating effective job-search documents
- Career counselling
- Co-op and internships
- Interview preparation
- Job market information
- Job search strategies

The Career Centre hosts a variety of events during the academic year including employer information and networking sessions, job fairs and interviews conducted by leading employers.

Student Engagement, Equity and Inclusion, and ***Indigenous Education and Cultural Services***

The university supports students' successful transition and provides opportunities to develop leadership and professional skills throughout their university career. Services provided include:

- Equity and inclusivity programming and support groups
- Indigenous Education and Cultural Services provides space and supports for students to connect with Indigenous culture and resources
- Opportunities to grow and develop leadership skills through the Ambassador and Peer Mentorship program
- Orientation and events through first year
- Peer mentoring
- Services and supports for international and exchange students

- Specialized programming for first-generation, graduate, Indigenous, international, mature, online, transfer and diploma-to-degree pathways students

Student Mental Health Services

Student Mental Health Services helps students learn how to better manage the pressures of student life. Students can:

- Access short term counselling and therapy services
- Access tools and resources online to learn about mental health and how to maintain good health and wellness
- Attend drop-in sessions
- Participate in events, activities or support groups that promote positive health and well-being
- Work with a mental health professional to address concerns

Students in distress will also be provided with support and counselling as needed. There is no cost to students and services are confidential. For those who need long-term counselling support or specialized mental health services, Ontario Tech University will provide referrals to assist the student in accessing resources in the local community or in the student's home community.

Athletics and Recreation Facilities

Ontario Tech University offers a number of recreation facilities and fitness opportunities to meet all lifestyles and needs. On-campus facilities include the state-of-the-art FLEX Fitness Centre which overlooks Oshawa Creek, five gymnasiums, a 200-metre indoor track, two aerobic/dance studios, the Campus Ice Centre, Campus Fieldhouse, a soccer pitch, a fastball diamond, squash courts and an indoor golf training centre. Students are able to participate in varsity and intramural sports as well as group fitness classes and personal training sessions.

Campus Health Centre

The Campus Health Centre provides assistance in numerous confidential health-care options including:

- A medical clinic with daily access to physician and nursing staff
- Treatment of disease, illness, and injury
- Allergy injections, immunizations, and influenza injections
- Complementary Health Services featuring acupuncture, chiropractic, custom orthotics, massage therapy, nutritional counselling, and physical therapy
- An on-site laboratory (blood work, STI testing, throat swabs, etc.)
- Gynaecological health-care and prescriptions

Student Awards and Financial Aid

Student Awards and Financial Aid (SAFA) is dedicated to helping students understand the variety of options available to finance their education. Budgeting and financial planning are essential to their success and SAFA is on hand to help create the right financial plan. Financial assistance can be in the form of bursaries, employment (both on-campus and off), parental resources, scholarships, student lines of credit and the Ontario Student Assistance Program (OSAP).

Teaching & Learning Centre

The mission of the Teaching and Learning Centre (TLC) at Ontario Tech University is to empower faculty to reach their potential as educators and to create a culture where effective teaching is valued. We champion the scholarship of teaching and implementation of pedagogy. We create valuable teaching and learning professional development experiences. We move Ontario Tech University towards being a leader in teaching excellence, ultimately leading to greater student success.

The TLC provides faculty with a range of tools and facilities to assist them in providing a rich learning experience for students. Experts at the TLC provide support in various areas including curriculum development, multimedia design, learning technology and in the overall improvement of teaching practice.

In addition, the TLC funds teaching-related projects from the Teaching Innovation Fund (TIF) for proposals by faculty members aimed at developing new methods in teaching and learning. The TLC facilitates teaching awards at the University and supports faculty in their application for external awards and funding opportunities that focus on teaching and learning.

Campus Libraries

The Campus Libraries support teaching, learning, and research at Ontario Tech University with facilities, collections, and programming.

Library Collections:

- The Library's total collections budget is $1.7 million.
- Collections include books, e-books, databases, journals, data and statistics, and multimedia materials

Support for teaching and learning:

- A dedicated librarian for each program who provides instruction, research consultations, and collection development
- Research guides for each of Ontario Tech's programs, as well as general guides for citation, copyright, and other broad topics
- Workshops and classes: custom in-class sessions, and general instruction sessions

- Three (3) online modules in Ontario Tech's learning management system, which professors can integrate seamlessly into their course shells

Research supports:

- Research consultations with subject librarians
- Extended support via the Library's virtual reference service
- Support for generative artificial intelligence: citation, copyright, and allowable use of library resources

Scholarly publishing supports:

- Research data management
- Publishing compliance with Tri-Council and other funders
- Support finding and creating open educational resources (OERs)
- Copyright advice and compliance information
- Support for authors, including reviewing author agreements
- Administration of APC waivers for faculty publishing in open access

Facilities:

- The Campus Libraries include the North Oshawa Library, which is the campus' main branch, and the Social Sciences, Humanities, and Education Library, which is located in downtown Oshawa
- The Library's locations include:
    - Extended library hours are available during peak season
    - Groups study rooms are available for student booking
    - Accessible workstations, and sit-stand desks
    - Computers and dual monitor workstations

Information Technology Resources

Ontario Tech University is a leader among North American universities in implementing and using curriculum and industry specific software in a technology-enriched learning environment (TELE). Our unique environment is adapted to each discipline based on faculty requirements and input for optimal student learning. We are committed to providing the greatest value for students' investment in education and technology while studying at Ontario Tech University.

One of the greatest advantages of Ontario Tech University's approach to TELE is that all students have equal access to the same technology, resources and services. Whether you are inside or outside of the classroom, your course-specific software allows you to work on your own or with others and enjoy seamless access to all Ontario Tech online resources. TELE supports Bring-your-own-device (BYOD) which provides you with laptop standards when acquiring the right laptop for your program and software support services onsite and online. An annual fee for TELE covers a wide range of program-specific software, technical software support, exam support and virus protection.

IT Services strives to provide quality services to students at Ontario Tech. To support these objectives, the following components are included:

Wireless network
Wireless internet connection is available in public areas and open-air locations around the Ontario Tech campus where students congregate (North Oshawa and Downtown locations).

Wired network
To ensure the success of the technology-enriched learning environment, a comprehensive data network has been installed on campus. This includes network drops in lecture halls and designated areas as well as network drops for each residence suite.

Ontario Tech students benefit from networked classrooms and learning spaces. Each ergonomically-designed space has data network connection access and electrical connections to ensure battery regeneration. In addition, classrooms include electronic projection equipment and full multimedia support.

Exam support services
IT Services provide hardware, software and technical support during examinations. IT team will be equipped with loaner laptops in the event of major technical issues.

Laptop repairs
IT Services provide on campus repairs on eligible laptop models.

IT Service Desk

The IT Service Desk is equipped with certified technicians and experienced IT professionals offering technical support services on a drop-in, call-in or email basis.

General Use Workstations (GUWs)
Ontario Tech undergraduate students are able to use general workstations available at the library and have access to Bring Your Own Device Technology-Enriched Learning Environment (BYOD TELE) model course-specific software.

Software Support
Software Support specialists are available to students on-site and online to assist in downloading/installing University software and support any other software related issues.

Printing services
Printing services are available to students in the following areas: labs, classrooms, study common areas, the Learning Commons and the Library. All Ontario Tech students receive print credits every year, more Printpacks can be purchased through the Campus Bookstore if students require additional printing services.

New Graduate Program Proposal

The program proposal and accompanying documents must address the purpose and content of the new program and the capacity of the unit to deliver a high-quality program. This template is for all proposals for new graduate programs and aligns with Ontario Tech Institutional Quality Assurance Process (IQAP) requirements and, together with the required supporting documents, will help to ensure that all evaluation criteria established by the Quality Council are addressed. All sections of the template are required.

Full name of proposed program (as it will appear on the student's transcript): (e.g., Master of Arts in Education; Master of Science in Applied Bioscience)	Graduate Diploma in AI Engineering
Degree designation and short form: (e.g., Master of Arts, M.A.; Master of Science, M.Sc.)	GDip
Cost recovery program:	☐Yes ☒No
Professional program:	☒Yes ☐No
For graduate diplomas:	☐Type 2 ☒Type 3
Faculty offering the program: (i.e., where the program will be housed/site of academic authority)	Faculty of Engineering and Applied Science
Collaborating Faculty(ies) (if applicable):	N/A
Collaborating institution(s) (if applicable):	N/A
Program delivery location:	Ontario Tech North Campus and Hybrid
Proposed program start date (please change as needed):	Fall 2027
Program proponent/contact:	Akramul Azim
Version date (please change as you edit this proposal):	May 14, 2026
Date of Academic Council Approval:	

Brief **description of the proposed program[1]:** (NOTE: Text box is formatted to limit the description to 1000 characters or less. This description should be identical to the 'Program Abstract' on page one of the proposal.)

The AI Engineering Graduate Diploma incorporates Artificial Intelligence (AI) learning through practical, project-driven coursework centered on the development of AI-enabled software and systems. Throughout the program, students engage directly with contemporary AI engineering tools, platforms, and methodologies as they work on a range of engineering-focused use cases. All assignments and projects are integrated into the existing suite of graduate courses, leveraging current infrastructure and resources within the Faculty of Engineering and Applied Science. No additional facilities are required, ensuring a streamlined and sustainable delivery model. This learning structure not only strengthens students' technical proficiency in designing, implementing, and evaluating AI-based systems, but also enhances their professional skills in collaborative problem-solving, project management, and responsible technology development. Through existing courses, the diploma aligns closely with Ontario Tech University's strategic focus on artificial intelligence, preparing graduates to contribute effectively to emerging AI-driven industries and research initiatives.

[1] NOTE: Following the Quality Council's approval of the proposed program, the QA Secretariat will seek confirmation from the University that this description is appropriate to post on the Quality Council's website (Approved Programs — Ontario Universities Council on Quality Assurance (oucqa.ca))

New Graduate Program Proposal

Graduate Diploma in AI Engineering
Faculty of Engineering and Applied Science

1 Program Abstract

Please provide a brief overview of the proposed program, summarizing the key points, to be shared with the public, in 1000 characters or less. You may wish to include:

- *A clear statement of the purpose of the program (who is it for, what are the outcomes)*
- *Any program components, such as fields, pathways, or micro-credentials (note that fields, pathways, and micro-credentials are not required)*
- *Nature of the learning environment, noting any distinctive elements, including alternative modes of delivery (including online)*

Note that this statement will be used on a standalone basis and is for external purposes; what do you want potential students/advisors to know about this program? (You may wish to complete this section last.)

The AI Engineering Graduate Diploma incorporates Artificial Intelligence (AI) learning through practical, project-driven coursework centered on the development of AI-enabled software and systems. Throughout the program, students engage directly with contemporary AI engineering tools, platforms, and methodologies as they work on a range of engineering-focused use cases. All assignments and projects are integrated into the existing suite of graduate courses, leveraging current infrastructure and resources within the Faculty of Engineering and Applied Science. No additional facilities are required, ensuring a streamlined and sustainable delivery model. This learning structure not only strengthens students' technical proficiency in designing, implementing, and evaluating AI-based systems, but also enhances their professional skills in collaborative problem-solving, project management, and responsible technology development. Through existing courses, the diploma aligns closely with Ontario Tech University's strategic focus on artificial intelligence, preparing graduates to contribute effectively to emerging AI-driven industries and research initiatives.

2 Academic Rationale

- *Identify what is being proposed, clearly state the program objectives, and provide an academic rationale for the proposed program (what is being created and why?)*
- *Explain the appropriateness of the program name and degree nomenclature, particularly as they relate to the program objectives*
- *Describe the mode of delivery (in-class, hybrid, online) and any work-integrated learning; outline how the delivery and components are appropriate to support students in achieving the Degree Level Expectations, program outcomes, and Program Learning Outcomes*
- *Discuss how the program addresses the current state of the discipline or area of study*
- *Describe the ways in which the program fits into the broader array of program offerings within the Faculty and the University*
- *Describe any unique curriculum or program innovations, creative components, or significant high impact practice*

The proposed GDip in AI Engineering has been designed for engineers in industry and recent engineering graduates who wish to pursue a career in the AI sector. The program structure for the GDip will be hybrid and is comprised of four of the following courses:

- ENGR5775G Knowledge Disc. & Data Mining
- ENGR5785G Real-Time Data Analytics IoT
- ENGR5940G Intelligent Control Systems
- ENGR 5010G Advanced Optimization
- ENGR 5005G – Special Topics*

*Registration in Special Topics course(s) are subject to approval by the Graduate Program Director, must be relevant to the GDip program scope, and must be confirmed as enabling the student to meet the program learning outcomes and degree-level expectations for the graduate diploma.

The GDip offering of the courses will share the same lectures as those in the equivalent graduate courses.

The program name and nomenclature accurately reflect the program's scope and objectives. It signals a focused, graduate-level credential that builds on an engineering foundation while specializing in AI systems.

Innovative features of the program include integration with an established graduate program for resource efficiency and academic continuity, graduate-level assignments emphasizing applied research and industry-relevant problem-solving and a curriculum aligned with high-impact practices, fostering expertise in a sector vital to Canada's economic and environmental goals.

The Graduate Diploma in AI Engineering addresses a critical skills gap in a discipline undergoing rapid transformation due to sustainability goals, technological innovation, and infrastructure modernization.

[Optional] Describe any fields and/or any pathways from related programs. (Graduate programs are not required to have fields in order to highlight an area of strength or specialization within a program, nor are they required to provide specific pathways from programs at the college, bachelor, or other level.)

N/A

3 University Mission, Vision, Integrated Academic and Research Plan, and Strategic Mandate Agreement

- *Detail the consistency of the program objectives with the Mission, Vision, Integrated Academic and Research Plan, and Strategic Mandate Agreement*
- *Describe how the program contributes to the University's Mission and Vision*
- *Explain how the program aligns with the goals and priorities outlined in the Faculty's(ies') and University's Integrated Academic and Research Plan*
- *Is this program consistent with the mandate of the sector? (i.e. technically/vocationally/theoretically/academically oriented for universities) Identify how the program fits within one or more areas of strength or growth in Ontario Tech University's Strategic Mandate Agreement*

The AI Engineering Graduate Diploma is fully consistent with the academic and research-oriented mandate of the university sector in Ontario. As a graduate-level program, it integrates theoretical foundations with applied, project-based learning, reflecting the balance of scholarly rigor and practical relevance expected of university programming. The curriculum emphasizes advanced concepts in artificial intelligence, data analytics, optimization, and intelligent systems, while also fostering research-informed problem solving and innovation.

The program aligns strongly with key areas of strength and growth identified in Ontario Tech University's Strategic Mandate Agreement (SMA), particularly in the domains of STEM excellence, digital technologies, and industry-responsive education. Artificial intelligence and data-driven engineering are central to Ontario Tech's strategic vision, positioning the institution as a leader in technology-focused education and applied research.

4 Need, Demand, and Duplication

Provide evidence of the need and demand for the program and how this has been determined, focusing on:

- *Student interest:*

including number of prospective student inquiries, applications and registrations for similar programs, results from surveys/focus groups of existing students, graduates, or professionals in the field (include information about domestic vs. international student interest)

- *Societal need:*
    - *including evidence of the need for graduates of the program and in which fields (within academic, public, and/or private sectors);*
    - *employment opportunities for prospective graduates, indicating at least three occupations in which graduates from this proposed program may be employed, selecting at least one using the Ontario Job Futures website and one from the Government of Canada Labour Market Trends website; you may also wish to review the Durham Workforce Authority website and provide any relevant sector portfolio or local/community impact information;*
    - *for professional programs, a description of the program's congruence with current regulatory requirements*
    - *note if any employers in the area support the need for this program and include a letter(s) of support as an additional appendix*

Ontario and Canadian labour-market data consistently indicate a growing student and societal need for graduates with AI engineering skills. National projections from the Canadian Occupational Projection System show strong long-term demand, with nearly 47,000 job openings expected for software-engineering–related roles over the next decade many of which increasingly require competencies in AI, machine learning, data engineering, and MLOps. Short-term government outlooks for Ontario show a balanced-to-limited forecast for traditional software roles, but sector reports from the Vector Institute highlight rapid job creation and adoption of AI across healthcare, finance, advanced manufacturing, and the public sector. Local planning documents from the Durham Workforce Authority further identify applied digital technology and AI as priority skill gaps in the region, emphasizing employer demand and the need for new training pathways. Taken together, these trends point to sustained and expanding employment opportunities over the next 5 to 10 years, with industry, government, and regional organizations all signaling an urgent need for graduates capable of developing, deploying, and managing AI-enabled systems.

- *Describe how the program is distinct from other programs at Ontario Tech. Is it reasonable to anticipate this program might affect enrolment in other related programs? If so, how might this be addressed?*

The GDip in AI engineering is distinct from other programs at Ontario Tech. Although AI courses exist for some of the undergraduate programs, the GDip is designed for those who did not have the opportunity to take the AI Engineering Specialization during their undergraduate studies.

- *Is this a new area of study? Please explain:*

The GDip builds upon the already existing graduate electrical and software engineering courses, so it is not a new area of study. However, it is a further step into expanding Ontario Tech's offerings that contribute to the training needs of the AI sector.

- *Identify similar or complementary programs offered by other universities with specific reference to Ontario and Canadian examples.*
- *Provide additional overall comment on the justification for any duplication*

There isn’t a single, standardized “AI Engineering” graduate diploma across Ontario, but there are many graduate (master’s) and graduate-certificate (or diploma) programs in Ontario universities and colleges that are very AI-oriented or allow

specialization in AI.

Here are several graduate-level (master's or post-graduate certificate) AI or AI-engineering-related programs in Ontario, Canada:

University Programs (Master's / Graduate Degrees):

1. MEng in Electrical & Computer Engineering – AI Concentration - Toronto Metropolitan University (TMU)
    - Specialized MEng with AI courses such as neural networks, deep learning, intelligent systems, etc. Toronto Metropolitan University
    - Includes a practicum (real-world project) as part of the program. Toronto Metropolitan University

College-Level / Graduate Certificates (More Applied AI):

These are often shorter, more applied programs (graduate certificates) rather than full master's degrees:

1. Applied Artificial Intelligence & Machine Learning (Graduate Certificate) - Conestoga College
    - 1 year program, includes project-based learning. Conestoga College
    - Teaches AI algorithm design, system architecture, real-world applications. Conestoga College
2. Artificial Intelligence with Machine Learning (Graduate Certificate) - Humber Polytechnic
    - Two semesters. Humber Polytechnic
    - Covers ML algorithms, NLP, computer vision, data analytics, ethical considerations. Humber Polytechnic
3. Artificial Intelligence (Graduate Certificate) - Fleming College
    - Hands-on labs, capstone project, applied learning. Fleming College Toronto+1
    - Teaches ML, deep learning, vision, NLP, big data fundamentals. Fleming College Toronto
4. Artificial Intelligence (Graduate Certificate) - Seneca Polytechnic
    - 2 semester certificate. Seneca Polytechnic
    - Topics include machine learning, generative AI, prompt engineering, cloud, data viz. Seneca Polytechnic
5. Artificial Intelligence – Architecture, Design & Implementation (Graduate Certificate) - Georgian College
    - Focus on system architecture, neural networks, reinforcement learning, enterprise AI systems. Georgian College Academic Catalogue

5 Enrolment Information

- *Please complete Table 1 and provide, in paragraph form, information regarding enrolment projections*
- *Please determine the academic year when the program enrollment will reach a steady-state and add an asterisk (*) in the corresponding box beside the number*
- *This table should reflect normal estimated program length. (Table may be adjusted as necessary.)*

Table 1: Projected Enrollment by Academic and Program Year

	Academic Year					
	2026-2027	2027-2028	2028-2029	2029-2030	2030-2031	2031-2032
Level of Study						
Diploma year 1	10	10	20*	20	20	20
Total Enrollment	10	10	20	20	20	20

Projected enrollment would initially be around 10-15 students per year. The planned steady-state is 20 students per year. Note these directed offerings may be offered in alternate formats other than the traditional 12-week semester.

6 Admission Requirements

Outline the formal admission requirements as they will appear in the Academic Calendar

Minimum Academic Requirements for Graduate Diploma Programs:

- Hold a four-year honours degree or its equivalent from a recognized institution in the area of graduate study or a closely related subject.
- A minimum B-minus average (GPA: 2.7 on a 4.3 scale).
- Applicants that have a degree in subject areas outside of engineering or those who do not meet the minimum GPA requirements, but have relevant engineering experience will be evaluated on an individual case-by-case basis.

- *Explain how the program's admission requirements are appropriate for the program objectives and program learning outcomes: How will they help to ensure students are successful? How do they align with the learning outcomes of the program?*
- *Explain in detail any additional requirements for admission to the program such as minimum grade point average, special language, portfolio, etc. (and how the program recognizes prior work or learning experience, if applicable)*
- *Indicate the programs from which students may be drawn*

Graduates from any Canadian accredited undergraduate engineering program (or its equivalent) will be eligible to enrol in the GDip, including: Automotive Engineering, Civil Engineering, Electrical Engineering, Energy Engineering, Industrial Engineering, Manufacturing Engineering, Mechanical Engineering, Mechatronics Engineering, and Software Engineering.

To provide applicants looking to re-skill for the AI sector the potential opportunity to do the GDip in AI Engineering, applicants from non-engineering programs or those who do not meet the minimum GPA requirements will be considered on a case-by-case basis.

7 Program Requirements, Learning Outcomes, Degree Level Expectations (DLEs), and Program Structure

Participate in program learning outcome (PLO) development sessions and complete the PLO mapping document to describe what the student will know or be able to do by the end of the program and how that knowledge or skill will be demonstrated; include the mapping document as an appendix; refer to the new PLOs and PLO mapping document to complete the questions in this section.

Please see Appendix A for a list of the Program Learning Outcomes, Degree Level Expectations, Courses, and Assessments.

Discuss how the design, structure, requirements, and delivery of the program are appropriate for the program learning outcomes, program outcomes, and Degree Level Expectations. Guidance on program objectives and program-level learning outcomes, including examples, is available here. Be sure to include the following in your response:

- *The sequencing of required courses or other learning activities*
- *The mode of delivery of the program (is this an online or hybrid program?)*
- *Will the program be offered full-time and/or part-time; what is the program length for both full-time and part-time students; how will the program requirements reasonably be completed within the proposed time?*
- *A clear indication of how faculty scholarship and research is integrated; for researched-focused graduate programs, provide a clear indication of the nature and suitability of the major research requirements for degree completion; for professional graduate programs, how an understanding of research in this area will be reflected in curriculum and/or assessment*
- *How the program will be administered*
- *The unique curriculum or program innovations or creative components in this program*
- *The ways in which the curriculum addresses the current state of the discipline*
- *If the program is to be accredited, include with the above details about the accreditation requirements and add the accreditation tables, if available, as an additional Appendix*

Students complete four (4) graduate-level courses (12 credit hours total) from the list below, providing both theoretical understanding and practical training in AI-based engineering:

- ENGR 5010G Advanced Optimization
- ENGR 5775G Knowledge Disc. & Data Mining
- ENGR 5785G Real-Time Data Analytics IoT
- ENGR 5940G Intelligent Control Systems
- ENGR 5005G – Special Topics*

**Registration in Special Topics course(s) are subject to approval by the Graduate Program Director, must be relevant to the GDip program scope, and must be confirmed as enabling the student to meet the program learning outcomes and degree-level expectations for the graduate diploma.*

Delivery mode for the courses will be hybrid. In addition to the traditional 12-week semester delivery.

The courses available in the program cover the state-of-the-art in AI engineering and are taught by instructors with subject matter expertise.

The diploma can be completed on a part-time or full-time basis and it provides a flexible pathway for professionals seeking to upskill in AI Engineering or transition into leadership roles in smart-industry settings.

All course deliverables will be designed to ensure that the students are meeting the program learning outcomes and support the achievement of Graduate Degree Level Expectations. Assessments will not only measure content knowledge but also foster advanced competencies expected at the graduate level.

Provide evidence that each graduate student is required to take a minimum of two-thirds of the course requirements from among graduate-level courses

All courses that are required for the GDip are graduate level.

Describe how the principles of Equity, Diversity, Inclusion, and Decolonization have been considered:

- *Does the program contain concepts, materials, or resources from scholars/professionals who are part of one or more historically marginalized groups?*
- *Are multiple perspectives represented in the program, such as those offered by those who are Indigenous, Black, Persons of Colour, and/or 2SLGBTQIA+?*
- *How has accessibility been considered? More specifically, have the needs of students with disabilities been integrated into the program design (e.g., the ways that students are asked to demonstrate their learning)? Please provide information beyond the services offered by Student Accessibility Services*
- *Discuss how the program structure and delivery reflect universal design for teaching and learning and how the potential need to provide mental or physical health accommodations have been considered; describe how the program structure and delivery methods promote student well-being and resiliency and any elements that support a sense of community in the program*
- *Will this program provide space to allow for the discussion of other viewpoints outside the "dominant, Western narrative"?*

The Faculty of Engineering and Applied Science (FEAS) is fully committed to Equity, Diversity, and Inclusion (EDI), including in all its courses and all its research activities.

The material covered in this program considers the development of AI software and systems that serve the public, so it is critical that EDI considerations are incorporated into the development of these systems, in particular ensuring these systems are accessible for all users. The courses, where appropriate, will cover these issues to ensure that students understand the importance of designing accessible systems.

As an example of its focus on EDI, FEAS has the Women in Engineering Society with the following goals:

- We foster a welcoming and engaging space for female engineering students to create a sense of community on and off campus.
- We connect female students to future employers and engineering career opportunities across Canada, and showcase successful female engineering professionals.
- We equip our students with professional skills, connections, and inspiration to prepare them for their professional careers.
- We give back to the community by running outreach events to encourage and inspire young women to pursue an education in engineering.

In addition to the above, FEAS's Engineering Outreach offers programs targeting Indigenous and black students to inspire and encourage them to pursue engineering.

For students who have accommodation needs, existing Student Accessibility Services (SAS) supports will be available to students who require specific accommodations.

Does this Program contain any Indigenous content? ☐ Yes ☒ No ☐ Unsure

For more information on how Indigenous content is defined at Ontario Tech University and how to consult with the Indigenous Education Advisory Circle (IEAC), please refer to the Protocol for Consultation with the Indigenous Education Advisory Circle.

Has the IEAC been contacted ☐ Yes ☒ No If yes, when? [Insert Date Here]

What was the advice you received from the IEAC, and how has it been included in your proposal?

N/A

Did the IEAC ask you to return the proposal to them for review? ☐ Yes ☐ No

If yes, have they completed their review? ☐ Yes ☐ No ☒ N/A

Is there an experiential learning component (e.g. workplace learning, co-op, internship, field placements, service learning, mandatory professional practice) to the program? If yes, please describe this component in 2500 words or less. Include confirmed partners, duration of the experiential learning component(s), and projected number of placements (where applicable) and provide letters of support.

N/A

8 Assessment of Teaching and Learning

Using examples from the PLO mapping document, address the following. Please see Guidance on Assessment of Teaching and Learning and speak with the Teaching and Learning Centre (TLC) for advice on how to satisfy these criteria.

- *Appropriateness of the proposed methods for the assessment of student achievement of the intended program learning outcomes and Degree Level Expectations*
- *Describe plans for documenting and demonstrating:*
  - *The overall quality of the program*
  - *Whether the program is achieving in practice its proposed objectives;*
  - *Whether the students are achieving the program learning outcomes and a level of performance consistent with the Degree Level Expectations; and*
  - *How the resulting information will used to inform continuous program improvement*

The learning outcomes for the program are achieved through a combination of graduate-level course work, including assignments, exams, projects, and presentations.

Learning activities and materials in graduate courses will be carefully designed to ensure that learners are deliberately exposed to study, the majority of which is at, or informed by, the forefront of engineering theory and practice.

The courses have been designed to give students key knowledge in railway engineering as well as an opportunity for advanced development of generic skills such as communication and teamwork. In addition, there will be scholarly activities of independent investigation, report writing, and presentations.

Throughout the curriculum, learning activities are planned, and student progress will be monitored to ensure that safety, professional guidelines, and ethical responsibilities relevant to engineering are modelled, developed, and evaluated.

Student feedback surveys will be completed at the end of each course delivery to gather feedback. As well student performance in each course will be monitored yearly. The Graduate Program Director responsible for the program will review both the student feedback surveys and the student performance to ensure that the program is meeting its goals. In addition, the Industrial Advisory Committee will also provide feedback on the program delivery. Insights from these surveys and reviews will be documented and used to identify specific areas for improvement, inform curriculum adjustments, and guide enhancements to teaching and learning strategies.

Any required changes to curriculum, assessment methods, delivery, or administration are implemented as appropriate and feasible at the discretion of the Faculty Dean. Curricular changes are then submitted and documented through appropriate Faculty and University committees consistent with standard curricular change policies and procedures as identified in the IQAP.

To ensure sustained quality, program effectiveness will be assessed and monitored through the cyclical review process, providing actionable insights for continuous improvement. In addition to the external review every eight years, Ontario Tech's Academic Resource Committee (ARC) requires a brief report at program launch and a full report one-year after the launch of a new program. The one-year report will ask the program to review enrollment data, admission averages, and provide an analysis of successes and challenges encountered in the first year. If there are areas of concern and it is deemed necessary, ARC will make recommendations to enhance program effectiveness and student success and may request a subsequent report. If If required, the subsequent report will address key curricular and student data (e.g., GPA, retention data, etc.) as well as any outstanding recommendations from the one-year report. Pending the ARC’s review, further documentation may be required of the program for ongoing monitoring.

9 Calendar Copy and Program Map(s)

- *Provide, as an Appendix using the template provided, a clear and full calendar copy. The template ensures consistency across all programs in the Academic Calendar*
- *Provide, as an Appendix, a full list of all courses included in the program including course numbers, titles, and descriptions. Please indicate clearly whether the courses are new/existing. Include full new course proposals for new courses, the template for which will be provided by CIQE. Include the most recent course descriptions for existing courses. If you are making changes to the existing courses, also include a course change form. In an Appendix referenced in Section 11 below, you will note which faculty members are expected to teach in the program and who is responsible for developing any new courses.*

Please see Appendix B for the Calendar Copy for the program and Appendix C for the List of Program Courses and Descriptions.

10 Consultation

- *Describe the expected impact of the new program on the nature and quality of other programs delivered by the home and collaborating Faculty(ies) and any expected impact on programs offered by other Faculties*
- *Outline the process of consultation with the Deans of Faculties that will be implicated or affected by the creation of the proposed program*
- *Provide letters of support for the program from Deans at Ontario Tech and/or from other institutions/partners*
- *Describe any consultation undertaken with regard to the principles of Equity, Diversity, Inclusion, and Decolonization not covered in Section 7 above*

The Graduate Diploma in AI Engineering is designed to complement, rather than compete with, existing programs within the Faculty and across the University. By leveraging shared lectures with the Graduate ECE course offerings, the GDip enhances resource efficiency without diminishing the quality of graduate offerings.

Several discussions were held at the various levels of department and faculty.

As noted above, there will be no impact on other programs offered at Ontario Tech.

11 Resource Requirements

Resource Summary
Provide a brief summary *statement of the funding requirements and the rationale. Please consult with the Provost's Office early regarding any resource implications described in this section.*

As the program is leveraging the existing graduate ECE courses, it is anticipated there will be no major resource requirements. By leveraging existing graduate course offerings, the GDip enhances resource efficiency without diminishing the quality of graduate offerings.

The resource requirements outlined in Section 11 have been reviewed by the Academic Resource Committee (ARC): 9 December 2025
(date of review)

11.1 Human Resource Requirements

Faculty – New and Existing Requirements
Complete, as an Appendix, the table detailing the list of faculty committed to the program and provide, in paragraph form below, the following:

- *Clear evidence that faculty have the recent research or professional/clinical expertise needed to sustain the program, promote innovation, and foster an appropriate intellectual climate*
- *Additional information to demonstrate how supervisory loads are distributed in light of qualifications and appointment status, if not clear from the table*
- *Evidence of the participation of a sufficient number and quality of faculty who will actively participate in the delivery of (teach and/or supervise) the program and achieve the goals of the program and foster the appropriate academic environment, contribute substantively to the program, and commit to student mentoring*
- *Describe the role of any sessional/part-time faculty and any adjunct faculty; provide an approximate percentage used in the delivery of the program and the plans to ensure the sustainability of the program and quality of the student experience*
- *Explain the provision of supervision of any experiential learning opportunities; how will supervisory loads be distributed?*

Provide the CVs of all faculty who appear in the table of faculty committed to the program. These CVs should form a separate document with a table of contents and

should have all CVs in alphabetical order by surname. CVs should be submitted in a consistent format.

The program will be delivered by existing ECSE faculty members.

Please see Appendix D Faculty Information for a table detailing the list of faculty committed to the program and separate file for Curriculum Vitae (provided to the Quality Council for review).

Are additional faculty required to be able to offer this program? ☐ Yes ☒ No

Please explain, i.e. Why would new faculty not be required? Would this change over time? What year will the faculty hire be required, and are there additional criteria associated with the hiring requirement (e.g. enrolment levels, program growth, University or Faculty priorities)?

Since the course delivery will leverage the graduate ECE course offerings, no additional human resources will be required, unless the number of students enrolled reaches the point where more than one section of a given course needs to be offered. Details and timing of proposed hirings are coordinated and confirmed with the Provost's Office through regular operational conversations.

N/A

Additional Academic and Non-Academic Human Resources

Give details regarding the nature and level of TA support required by the program, the level of administrative (i.e. new program director appointment), and academic advising support, etc. If new staff resources are needed, provide further details below.

No TAs will be required unless the enrolment is large enough to warrant it.

Are additional staff required to be able to offer this program? ☐ Yes ☒ No

If yes, please outline what year the staff hire(s) will be required and any additional criteria associated with the hiring requirement (e.g. enrolment levels, program growth, University or Faculty priorities):

N/A

11.2 Learning Resources

Provide an opening statement to describe the resources to sustain the quality of scholarship and research activities of undergraduate and graduate students, enhance the learning and teaching environment, promote student well-being and resiliency in the learning and teaching environment; refer as noted to the two standard Appendices. Please contact your Subject Librarian as you begin your proposal to request the 'Library statement for new program proposal'.

The program will leverage existing institutional resources and targeted supports, including access to modern facilities, technology-enabled classrooms, and research infrastructure. Dedicated student services, academic advising, and wellness initiatives will promote student well-being and resiliency, ensuring a supportive and inclusive learning environment.

Please see Appendix E for a University statement concerning Learning Resources.

11.3 Information Technology

Provide a summary of evidence that there are adequate information technology resources to sustain the quality of scholarship and research activities of undergraduate and graduate students; address any unique requirements including renovations to existing space, Faculty-specific space/equipment, etc.; are there additional technology requirements specific to being able to successfully launch this program? Refer as noted to the standard Appendix.

The institution provides robust information technology resources to support high-quality scholarship and research activities for graduate students. These include access to modern computing facilities, high-speed networks, secure data storage, and discipline-specific software to enhance teaching and learning. Existing spaces are equipped with technology-enabled classrooms and research infrastructure ensuring the program can be successfully implemented and sustained.

Please see Appendix F for a University statement concerning information technology services.

Supporting information for online and hybrid programs

Where applicable, please provide the following details for online and hybrid programs:

- *Describe the adequacy of the technological platform to be used for online delivery*

- *Describe how the quality of education will be maintained*
- *Describe how the program objectives will be met*
- *Describe how the program learning outcomes will be met*
- *Describe the support services and training for teaching staff that will be made available*
- *Describe the sufficiency and type of supports that will be available to students*
- *How has accessibility been considered?*
- *What strategies have been considered to accommodate students with disabilities?*
- *Have the principles of Universal Design been considered?*
- *Will course content be offered in both written and audible forms (e.g., closed captioning, transcriptions)?*
- *Is course content designed logically and is it easy to follow with limited instruction?*
- *Are assignment expectations clear (i.e., a rubric)?*
- *Have the needs of students with limited or unreliable access to wi-fi been considered (e.g., breaking down pre-recorded lectures into maximum 10-minute videos)?*

The program will leverage existing University IT infrastructure. Ontario Tech is a laptop university where students bring their own laptop devices and are provided access to a software portal where they can download any necessary software required for their courses, including a variety of engineering specific packages such as Python, Git, MATLAB, and other AI tools as required.

The hybrid delivery of the courses will make use of Ontario Tech's flexible hybrid classrooms that allow for synchronous delivery with active participation from students both in room and online and the ability for all students to see all other students.

11.4 Financial Support for Graduate Students

Provide evidence that financial assistance for students, including TA-ships where applicable, will be sufficient to ensure adequate quality and numbers of students.

No financial assistance will be provided as this is a professional program.

11.5 Space and Infrastructure Requirements

- *Provide evidence that there are adequate resources to sustain the quality of scholarship and research activities of undergraduate and graduate students,*

including information about laboratory and research space access, where applicable, and office space; address any unique requirements
- *Highlight the change in the number of faculty, students, administrative staff, etc. as well as information on changes in equipment and activities; renovation of existing space; or whether the current space allocation will accommodate the new program*
- *Are there additional space requirements specific to being able to successfully launch this program?*

The hybrid delivery of the courses and the leveraging with the current graduate course delivery will have minimal impact on classroom requirements.

No additional space requirements are required.

11.6 Other Resource Implications

- *Note here if this new program may impact enrolment agreements with other institutions/external partners that exist with the Faculty/Provost's office. Indicate if the new program will require changes to any existing agreements with other institutions or will require the creation of a new agreement. Please consult with CIQE (ciqe@ontariotechu.ca) regarding any implications to existing or new agreements*
- *Are there inter-Faculty teaching implications?*
- *If this is a new joint program with another institution, indicate how the program will be administered and how program reviews will be conducted (refer to the Ontario Tech Institutional Quality Assurance Process Policy for more information)*

The program does not impact any existing agreements Ontario Tech has with institutional and external partners. In addition, there are no inter-Faculty implications.

12 Closing Statements Regarding Program Quality

- *Please summarize the appropriateness of the faculty's collective expertise and how it contributes substantively to the proposed program; use indicators to provide evidence of the quality of the faculty (e.g., qualifications, funding, honours, awards, research, innovation, and scholarly record).*

- *Please summarize how the program and faculty will ensure the intellectual quality of the student experience.*

The GDip in AI Engineering has been designed to meet the demands of this rapidly growing sector. The Faculty has several professors (with also outside faculty members with graduate faculty status) with AI expertise who can deliver courses as needed. The program has been designed to meet the needs of the AI sector. The Faculty has a history of quality program delivery that will serve as a model for the delivery of this new program.

Appendices

Please include at minimum the below. Additional Appendices may be added, as appropriate. Appendices should ultimately be listed below, attached as separate documents, and clearly labelled (A, B, C, etc.) in the order in which they are first mentioned in the document.

Appendix A: Program Learning Outcome Alignment Map to DLEs, Courses, and Assessments
Appendix B: Calendar Copy
Appendix C: List of Program Courses and Descriptions for Existing Courses
Appendix D: Faculty Information
Appendix E: Learning Resources
Appendix F: Information Technology Resources

Items to be separate documents sent to CIQE:

New Program Funding and Tuition form (for CIQE use only)
Budget Spreadsheet (for ARC use only)
Curriculum Vitae (for Quality Council use only)

Graduate Diploma – AI Engineering

PLO #	Program Learning Outcomes
PLO 1	Apply advanced concepts, principles, and theories in the field of AI engineering to analyze and solve complex engineering problems and practices.
PLO 2	Utilize analytical, numerical, experimental, and interpretive skills in the field of AI Engineering.
PLO 3	Design and conduct engineering experiments to identify problems and opportunities for system analysis, design, improvement, and computational optimization in the field of AI engineering..
PLO 4	Describe the complexity of AI and exhibit comprehensive knowledge of fundamental principles and methodologies.
PLO 5	Evaluate the social, professional, and ethical implications inherent in the advancement of research and applications within the field of AI.
PLO 6	Demonstrate effective skills for oral and written communication, project management, and teamwork in the field of AI Engineering..
PLO 7	Develop strategies for continuous education and lifelong learning in the field of AI engineering.

Graduate Diploma – AI Engineering

	Degree Level Expectation	Depth and Breadth of Knowledge		Research and Scholarship		Application of Knowledge	Professional Capacity and Autonomy	Awareness of Limits of Knowledge	Communication Skills	
	DLE Description	A systematic understanding of knowledge, including, where		A conceptual understanding and methodological competence that:		Competence in the research	a) The qualities and transferable skills necessary for employment	Cognizance of the complexity	The ability to communicate ideas, issues and conclusions clearly.	
	Program Learning Outcomes	PLO1	PLO4	PLO2	PLO3	PLO1	PLO5	PLO6	PLO5	PLO7
	PLO Description	Apply advanced concepts,	Describe the complexity of	Utilize analytical, numerical,	Design and conduct scientific experiments to identify	Apply advanced concepts,	Evaluate the social, professional, and ethical implications inherent in	Develop strategies for	Evaluate the social,	Demonstrate effective skills for
Course No.	Course Title									
ENGR 5010G	Advanced Optimization	3,4,7		3,4,7	4,7	4,7		3,7		3,7
ENGR 5775G	Knowledge Discovery and Data Mining	3, 7	3, 7	3, 7	3, 7	3, 7	3, 7	3, 7	3, 7	3, 7
ENGR 5785G	Real-Time Data Analytics for Internet of Things	3, 7	3, 7	3, 7	3, 7	3, 7	3, 7	3, 7	3, 7	3, 7
ENGR 5940G	Intelligent Control Systems	3, 7	3, 7	3, 7	3, 7	3, 7	3, 7	3, 7	3, 7	3, 7

Degee of Implementation:		Assessments - Identify types of relevant assessments and number them (do not have to be in rank order); those listed below are only examples								
	Introduced	1 - Test		4 - Assignment		7 - Group project				
	Reinforced	2 - Exam		5 - Essay						
	Mastered	3 - Presentation		6 -Thesis						

AI Engineering, Graduate Diploma

General Information

The Graduate Diploma (GDip) in AI Engineering incorporates Artificial Intelligence (AI) learning through practical, project-driven coursework centered on the development of AI-enabled software and systems. Throughout the program, students engage directly with contemporary AI engineering tools, platforms, and methodologies as they work on a range of engineering-focused use cases. All assignments and projects are integrated into the existing suite of graduate courses, leveraging current infrastructure and resources within the Faculty of Engineering and Applied Science. No additional facilities are required, ensuring a streamlined and sustainable delivery model. This learning structure not only strengthens students' technical proficiency in designing, implementing, and evaluating AI-based systems, but also enhances their professional skills in collaborative problem-solving, project management, and responsible technology development. Through existing courses, the diploma aligns closely with Ontario Tech University's strategic focus on artificial intelligence, preparing graduates to contribute effectively to emerging AI-driven industries and research initiatives.

Admission Requirements

In addition to the general admission requirements for graduate studies, applicants must meet the following program-specific requirements:

Minimum Academic Requirements for Graduate Diploma Programs:

- Hold a four-year honours degree or its equivalent from a recognized institution in the area of engineering or a closely related subject.
- A minimum B-minus average (GPA: 2.7 on a 4.3 scale).
- Applicants that have a degree in subject areas outside of engineering or those who do not meet the minimum GPA requirements, but have relevant engineering experience will be evaluated on an individual case-by-case basis.

Graduates from any Canadian accredited undergraduate engineering program (or its equivalent) will be eligible to enrol in the GDip, including: Automotive Engineering, Civil Engineering, Electrical Engineering, Energy Engineering, Industrial Engineering, Manufacturing Engineering, Mechanical Engineering, Mechatronics Engineering, and Software Engineering.

Note, the consideration of applicants from non-engineering programs or those who do not meet the minimum GPA requirements is to provide applicants looking to re-skill for the AI sector the potential opportunity to do the GDip in AI Engineering.

Part-time studies

To facilitate access to all potential students, part-time studies are permitted. In particular, engineers in industry may wish to pursue a graduate diploma program through part-time studies.

Graduate diploma requirements

or the graduate diploma, students must complete the four courses below for a total of 12 credits.

Note: Graduate diploma students are not permitted to take courses outside of their home program course listings for program credit. In addition, they may not take any senior fourth-year undergraduate courses from the Faculty of Engineering and Applied Science in lieu of a graduate course.

Course listings

- ENGR 5005G Special Topics*****
- ENGR 5775G Knowledge Disc. & Data Mining
- ENGR 5785G Real-Time Data Analytics IoT
- ENGR 5940G Intelligent Control Systems
- ENGR 5010G Advanced Optimization

*****upon approval by Graduate Program Director and relevant to the scope.

Program learning outcomes

The following outcomes outline the knowledge and skills students will have achieved upon completion of the program.

Program Learning Outcomes - AI Engineering, Graduate Diploma

Appendix C - List of Program Courses and Course Descriptions

List of Program Courses

The program consists of four graduate-level courses (12 credits total), selected from the following:

Course Code	Course Name	
ENGR 5010G	Advanced Optimization	Existing Course - course description enclosed
ENGR 5775G	Knowledge Disc. & Data Mining	Existing Course - course description enclosed
ENGR 5785G	Real-Time Data Analytics IoT	Existing Course - course description enclosed
ENGR 5940G	Intelligent Control Systems	Existing Course - course description enclosed
ENGR 5005G	Special Topics	Existing Course - course description enclosed

ENGR 5010G - Advanced Optimization
The objective of this course is to understand the principles of optimization and its application to engineering problems. Topics covered include the steepest descent and Newton methods for unconstrained optimization; golden section, quadratic, cubic and inexact line searches; conjugate and quasi-Newton methods; the Fletcher-Reeves algorithm; fundamentals of constrained optimization theory; simplex methods for linear programming; modern interior-point methods; active-set methods and primal-dual interior point methods for quadratic and convex programming; semi-definite programming algorithms; sequential quadratic programming; and interior-point methods for non-convex optimization. In addition, implementation issues and current software packages/algorithms for optimization will be covered. Global optimization, including genetic algorithms and simulated annealing, will be introduced.

ENGR 5775G - Knowledge Discovery and Data Mining
This course covers the discovery of new knowledge using various data mining techniques on real-world datasets, and the current research directions represent the foundation context for this course. This course utilizes the latest blended learning techniques to explore topics in foundations of knowledge discovery and data mining; data mining approaches; and the application of data mining within such diverse domains as health care, business, supply chain and IT security. Current research directions, trends, issues and challenges are also explored.

ENGR 5785G - Real-Time Data Analytics for Internet of Things
The velocity, diversity of data types and sheer volumes of data that IoT (Internet of Things) devices collect present unique challenges on data analytics techniques to support real-time decision making. This requires new perspectives in data collection, processing and management flows to cater to such unique requirements. This course focuses on data analytics specific to real-time data streams in IoT environments and applications. The course begins by defining the IoT conceptual framework, outlines application domains and draws clear distinctions between IoT data processing and typical big data analytics. Themes to be covered: IoT data collection architectures, interactions between service models and human subjects, data preprocessing, feature engineering and extraction, statistical modelling and estimation methods, time series analysis, spatiotemporal modelling, multivariate time series forecasting, real-time streaming data pipelines, anomaly detection in real-time sensing, event detection and classification techniques, privacy and security in IoT scenarios, and dynamic access control for real-

time IoT.

ENGR 5940G - Intelligent Control Systems
With the advance of increasingly faster computing hardware and cheaper memory chips, computational intelligence, also known as a part of soft computation, is becoming more and more important in control engineering. This course will equip students with the essential knowledge and useful resources to solve some of the systems control problems not easily solved using conventional control methods. This course will cover fundamentals of fuzzy set theory, structures of fuzzy logic controllers, structures of neural networks, learning algorithms and genetic algorithms.

ENGR 5005G - Special Topics
Presents material in an emerging field or one not covered in regular offerings. This course may be taken more than once, provided the subject matter is substantially different.

Appendix D – Faculty Information

Please include here only those currently at the institution and affiliated with the program. Examples in purple to be removed. ***Where available, link each faculty name to their Research or Profile page on the website.***

Name and Faculty Status/Rank	Terminal Degree	Home Faculty/Unit	Areas of Expertise
Professor			
Associate Professor			
Akramul Azim	PhD	Faculty of Engineering and Applied Science	• Real-Time Systems • Embedded Software • Safety-Critical Systems • Internet of Things • Software Verification and Validation • Software Quality and Testing • Applied Machine Learning
Mohamed El-Darieby	PhD	Faculty of Engineering and Applied Science	• Software Systems Engineering • Software Process Management • Software Analysis • Design • Computer Systems • Cloud computing • Internet of Things • Pervasive Computing • Data Engineering • Big Data • Artificial Intelligence • Applications areas • Connected and Autonomous Vehicles • Smart Agriculture • Intelligent Transportation Systems • Smart City and Infrastructure

Khalid Elgazzar	PhD	Faculty of Engineering and Applied Science	• Internet of things • Ubiquitous computing • Real-time data analytics • Distributed systems • Intelligent software systems • Mobile computing • Cloud and edge computing
Qusay Mahmoud	PhD	Faculty of Engineering and Applied Science	• software systems • web engineering • mobile computing • engineering education
Masoud Makrehchi	PhD	Faculty of Engineering and Applied Science	• Natural Language Processing • Artificial Intelligence • Machine Learning • Text and Data Mining • Social Computing • Mining Social Networks and Complex Systems • Network Science • Moral AI
Assistant Professor			
Sanaa Alwidian	PhD	Faculty of Engineering and Applied Science	• Software Engineering • Goal-oriented Requirements Engineering • Model-based System Engineering • Software Evolution and Analysis • AI and its application to Software Engineering • Mobile Ad Hoc Networks • Natural Language Processing
Naim Beigi-Mohammadi	PhD	Faculty of Engineering and Applied Science	• Adaptive software systems • Engineering autonomic management systems on cloud

			• Applications of adaptive software systems in public safety and urban management
Hani Sami	PhD	Faculty of Engineering and Applied Science	• Fog/Edge Computing • Vehicular Networks • Internet of Things • Autonomous Resource Management • Machine Leaning • Reinforcement Learning • Large Language Models • Federated Learning • Multi-Agent Systems
Kundi Yao	PhD	Faculty of Engineering and Applied Science	• Software engineering • AIOps • Software maintenance • Software testing • Performance engineering • Software Engineering for AI • Mining software repositories • Empirical software engineering

Existing Non-Financial Student Support Services

School of Graduate and Post-Doctoral Studies

Quality graduate and postdoctoral education combines teaching, research, professional development, disciplinary community involvement and personal growth. It is by nature a shared responsibility between students, faculty members, the programs and a large number of support units, with overarching administration being provided by the School of Graduate and Postdoctoral Studies.

The School of Graduate and Postdoctoral Studies (SGPS) furthers the scholarly mission of the university by providing academic and administrative support to the university's postgraduate educational, research, innovation and international activities. Our responsibilities include graduate program development, graduate enrolment management, oversight of academic and quality standards, and the implementation of policies and practices that enhance graduate/postdoctoral scholarly success, career readiness and personal growth. SGPS supports prospective, new and current graduate students through many administrative services including, but not limited to, recruitment, admission, registration, funding and scholarships, orientation, professional development workshops and events, and processing of final theses, projects and papers. SGPS is a single-point-of-contact, multifunctional administrative unit tailored to the complete "life-cycle" of graduate students, providing coordinated support to students and all other stakeholders.

Student Life

Ontario Tech University, as a relatively small campus community, has a centralized delivery model for many student supports. All undergraduate students have access to an extensive support system that ensures a quality student experience. Each Faculty may provide additional, Faculty- or program-specific supports. In addition to the outlined services below, students may also take advantage of the Campus Bookstore, Housing and Living Resources as well as the Ontario Tech Student Union. Further information can be found at: http://studentlife.ontariotechu.ca/.

Student Learning Centre

Ontario Tech University fosters a high level of academic excellence by working with students, undergraduate and graduate, to achieve educational success. Faculty specific academic resources are available online and include tip sheets and videos. Academic specialists offer one-on-one support services in mathematics, writing, study skills, ESL and physics. With the additional support of peer tutors and workshops, the Student Learning Centre can also accommodate the needs of a specific course or program.

Student Accessibility Services

Ontario Tech University ensures that students with disabilities have equal opportunities for academic success. Student Accessibility Services operates under the

Ontario Human Rights Code and the Accessibility for Ontarians with Disabilities Act. Services and accommodation support are provided for students with documented disabilities and include:

- Adaptive technology training
- Alternate format course material
- Learning skills support
- Testing support
- Transition support for incoming students

Student Accessibility Services also provides inclusive peer spaces, support groups, and skills workshops for students.

Career Readiness

Ontario Tech University offers comprehensive career service assistance, co-op and internship support and a variety of valuable resources to help students along their career paths, including:

- Assistance with creating effective job-search documents
- Career counselling
- Co-op and internships
- Interview preparation
- Job market information
- Job search strategies

The Career Centre hosts a variety of events during the academic year including employer information and networking sessions, job fairs and interviews conducted by leading employers.

Student Engagement, Equity and Inclusion, and ***Indigenous Education and Cultural Services***

The university supports students' successful transition and provides opportunities to develop leadership and professional skills throughout their university career. Services provided include:

- Equity and inclusivity programming and support groups
- Indigenous Education and Cultural Services provides space and supports for students to connect with Indigenous culture and resources
- Opportunities to grow and develop leadership skills through the Ambassador and Peer Mentorship program
- Orientation and events through first year
- Peer mentoring
- Services and supports for international and exchange students

- Specialized programming for first-generation, graduate, Indigenous, international, mature, online, transfer and diploma-to-degree pathways students

Student Mental Health Services

Student Mental Health Services helps students learn how to better manage the pressures of student life. Students can:

- Access short term counselling and therapy services
- Access tools and resources online to learn about mental health and how to maintain good health and wellness
- Attend drop-in sessions
- Participate in events, activities or support groups that promote positive health and well-being
- Work with a mental health professional to address concerns

Students in distress will also be provided with support and counselling as needed. There is no cost to students and services are confidential. For those who need long-term counselling support or specialized mental health services, Ontario Tech University will provide referrals to assist the student in accessing resources in the local community or in the student's home community.

Athletics and Recreation Facilities

Ontario Tech University offers a number of recreation facilities and fitness opportunities to meet all lifestyles and needs. On-campus facilities include the state-of-the-art FLEX Fitness Centre which overlooks Oshawa Creek, five gymnasiums, a 200-metre indoor track, two aerobic/dance studios, the Campus Ice Centre, Campus Fieldhouse, a soccer pitch, a fastball diamond, squash courts and an indoor golf training centre. Students are able to participate in varsity and intramural sports as well as group fitness classes and personal training sessions.

Campus Health Centre

The Campus Health Centre provides assistance in numerous confidential health-care options including:

- A medical clinic with daily access to physician and nursing staff
- Treatment of disease, illness, and injury
- Allergy injections, immunizations, and influenza injections
- Complementary Health Services featuring acupuncture, chiropractic, custom orthotics, massage therapy, nutritional counselling, and physical therapy
- An on-site laboratory (blood work, STI testing, throat swabs, etc.)
- Gynaecological health-care and prescriptions

Student Awards and Financial Aid

Student Awards and Financial Aid (SAFA) is dedicated to helping students understand the variety of options available to finance their education. Budgeting and financial planning are essential to their success and SAFA is on hand to help create the right financial plan. Financial assistance can be in the form of bursaries, employment (both on-campus and off), parental resources, scholarships, student lines of credit and the Ontario Student Assistance Program (OSAP).

Teaching & Learning Centre

The mission of the Teaching and Learning Centre (TLC) at Ontario Tech University is to empower faculty to reach their potential as educators and to create a culture where effective teaching is valued. We champion the scholarship of teaching and implementation of pedagogy. We create valuable teaching and learning professional development experiences. We move Ontario Tech University towards being a leader in teaching excellence, ultimately leading to greater student success.

The TLC provides faculty with a range of tools and facilities to assist them in providing a rich learning experience for students. Experts at the TLC provide support in various areas including curriculum development, multimedia design, learning technology and in the overall improvement of teaching practice.

In addition, the TLC funds teaching-related projects from the Teaching Innovation Fund (TIF) for proposals by faculty members aimed at developing new methods in teaching and learning. The TLC facilitates teaching awards at the University and supports faculty in their application for external awards and funding opportunities that focus on teaching and learning.

Campus Libraries

The Campus Libraries support teaching, learning, and research at Ontario Tech University with facilities, collections, and programming.

Library Collections:

- The Library's total collections budget is $1.7 million.
- Collections include books, e-books, databases, journals, data and statistics, and multimedia materials

Support for teaching and learning:

- A dedicated librarian for each program who provides instruction, research consultations, and collection development
- Research guides for each of Ontario Tech's programs, as well as general guides for citation, copyright, and other broad topics
- Workshops and classes: custom in-class sessions, and general instruction sessions

- Three (3) online modules in Ontario Tech's learning management system, which professors can integrate seamlessly into their course shells

Research supports:

- Research consultations with subject librarians
- Extended support via the Library's virtual reference service
- Support for generative artificial intelligence: citation, copyright, and allowable use of library resources

Scholarly publishing supports:

- Research data management
- Publishing compliance with Tri-Council and other funders
- Support finding and creating open educational resources (OERs)
- Copyright advice and compliance information
- Support for authors, including reviewing author agreements
- Administration of APC waivers for faculty publishing in open access

Facilities:

- The Campus Libraries include the North Oshawa Library, which is the campus' main branch, and the Social Sciences, Humanities, and Education Library, which is located in downtown Oshawa
- The Library's locations include:
    - Extended library hours are available during peak season
    - Groups study rooms are available for student booking
    - Accessible workstations, and sit-stand desks
    - Computers and dual monitor workstations

Information Technology Resources

Ontario Tech University is a leader among North American universities in implementing and using curriculum and industry specific software in a technology-enriched learning environment (TELE). Our unique environment is adapted to each discipline based on faculty requirements and input for optimal student learning. We are committed to providing the greatest value for students' investment in education and technology while studying at Ontario Tech University.

One of the greatest advantages of Ontario Tech University's approach to TELE is that all students have equal access to the same technology, resources and services. Whether you are inside or outside of the classroom, your course-specific software allows you to work on your own or with others and enjoy seamless access to all Ontario Tech online resources. TELE supports Bring-your-own-device (BYOD) which provides you with laptop standards when acquiring the right laptop for your program and software support services onsite and online. An annual fee for TELE covers a wide range of program-specific software, technical software support, exam support and virus protection.

IT Services strives to provide quality services to students at Ontario Tech. To support these objectives, the following components are included:

Wireless network
Wireless internet connection is available in public areas and open-air locations around the Ontario Tech campus where students congregate (North Oshawa and Downtown locations).

Wired network
To ensure the success of the technology-enriched learning environment, a comprehensive data network has been installed on campus. This includes network drops in lecture halls and designated areas as well as network drops for each residence suite.

Ontario Tech students benefit from networked classrooms and learning spaces. Each ergonomically-designed space has data network connection access and electrical connections to ensure battery regeneration. In addition, classrooms include electronic projection equipment and full multimedia support.

Exam support services
IT Services provide hardware, software and technical support during examinations. IT team will be equipped with loaner laptops in the event of major technical issues.

Laptop repairs
IT Services provide on campus repairs on eligible laptop models.

IT Service Desk

The IT Service Desk is equipped with certified technicians and experienced IT professionals offering technical support services on a drop-in, call-in or email basis.

General Use Workstations (GUWs)
Ontario Tech undergraduate students are able to use general workstations available at the library and have access to Bring Your Own Device Technology-Enriched Learning Environment (BYOD TELE) model course-specific software.

Software Support
Software Support specialists are available to students on-site and online to assist in downloading/installing University software and support any other software related issues.

Printing services
Printing services are available to students in the following areas: labs, classrooms, study common areas, the Learning Commons and the Library. All Ontario Tech students receive print credits every year, more Printpacks can be purchased through the Campus Bookstore if students require additional printing services.

Full name of proposed program (as it will appear on the student's transcript): (e.g., Master of Arts in Education; Master of Science in Applied Bioscience)	Graduate Diploma in Digital Transformation in Advanced Manufacturing
Degree designation and short form: (e.g., Master of Arts, M.A.; Master of Science, M.Sc.)	GDip
Cost recovery program:	☐Yes ☒No
Professional program:	☒Yes ☐No
For graduate diplomas:	☐Type 2 ☒Type 3
Faculty offering the program: (i.e., where the program will be housed/site of academic authority)	Faculty of Engineering and Applied Science
Collaborating Faculty(ies) (if applicable):	N/A
Collaborating institution(s) (if applicable):	N/A
Program delivery location:	Ontario Tech North Campus and Hybrid
Proposed program start date (please change as needed):	Fall 2027
Program proponent/contact:	Sayyed Ali Hosseini
Version date (please change as you edit this proposal):	May 14, 2026
Date of Academic Council Approval:	

New Graduate Program Proposal

The program proposal and accompanying documents must address the purpose and content of the new program and the capacity of the unit to deliver a high-quality program. This template is for all proposals for new graduate programs and aligns with Ontario Tech Institutional Quality Assurance Process (IQAP) requirements and, together with the required supporting documents, will help to ensure that all evaluation criteria established by the Quality Council are addressed. All sections of the template are required.

Brief **description of the proposed program[1]:** (NOTE: Text box is formatted to limit the description to 1000 characters or less. This description should be identical to the 'Program Abstract' on page one of the proposal.)

The manufacturing sector is a key driver of the Canadian economy, with increasing demand for digitalization to enhance productivity, sustainability, and global competitiveness. The Digital Transformation in Advanced Manufacturing Graduate Diploma is designed for engineering graduates and professionals seeking to develop expertise in modern manufacturing systems and lead innovation in the sector. Through experiential, project-based coursework embedded within existing graduate courses, students are expected to gain experience on digital manufacturing technologies and tools, including computer-aided manufacturing, digital twins, robotics, and data-driven process optimization to address real-world manufacturing challenges. The program emphasizes smart manufacturing systems, automation, and digital design, while building both technical and professional competencies aligned with applied, technology-driven learning. Graduates will be equipped with the analytical and technical skills required to contribute to advanced, connected manufacturing environments and support the ongoing digital transformation of the industry.

[1] NOTE: Following the Quality Council's approval of the proposed program, the QA Secretariat will seek confirmation from the University that this description is appropriate to post on the Quality Council's website (Approved Programs — Ontario Universities Council on Quality Assurance (oucqa.ca))

New Graduate Program Proposal

Graduate Diploma in Digital Transformation in Advanced Manufacturing
Faculty of Engineering and Applied Science

1 Program Abstract

Please provide a brief overview of the proposed program, summarizing the key points, to be shared with the public, in 1000 characters or less. You may wish to include:

- *A clear statement of the purpose of the program (who is it for, what are the outcomes)*
- *Any program components, such as fields, pathways, or micro-credentials (note that fields, pathways, and micro-credentials are not required)*
- *Nature of the learning environment, noting any distinctive elements, including alternative modes of delivery (including online)*

Note that this statement will be used on a standalone basis and is for external purposes; what do you want potential students/advisors to know about this program? (You may wish to complete this section last.)

The manufacturing sector is key to the Canadian economy, with increasing demand for digital technologies to enhance productivity, sustainability, and global competitiveness. Digital transformation is a critical component in modernizing manufacturing systems, enabling more efficient, connected, and data-driven production environments. The growth in advanced manufacturing in Canada is significant, with a rising demand from industry for engineers and professionals trained in smart and digital manufacturing systems and applications. The Digital Transformation in Advanced Manufacturing Graduate Diploma is designed for recent graduates and industry professionals with an undergraduate engineering degree who want to develop expertise in advanced manufacturing and lead innovation in the sector. Through experiential, project-based coursework embedded within existing graduate courses, students will gain experience with key areas of advanced manufacturing, including computer-aided manufacturing, digital twins, robotics, and data-driven process optimization, as well as smart design, automation, and connected manufacturing systems.

2 Academic Rationale

- *Identify what is being proposed, clearly state the program objectives, and provide an academic rationale for the proposed program (what is being created and why?)*
- *Explain the appropriateness of the program name and degree nomenclature, particularly as they relate to the program objectives*
- *Describe the mode of delivery (in-class, hybrid, online) and any work-integrated learning; outline how the delivery and components are appropriate to support students in achieving the Degree Level Expectations, program outcomes, and Program Learning Outcomes*
- *Discuss how the program addresses the current state of the discipline or area of study*
- *Describe the ways in which the program fits into the broader array of program offerings within the Faculty and the University*
- *Describe any unique curriculum or program innovations, creative components, or significant high impact practice*

Building upon the success of the Manufacturing Engineering undergraduate program, the proposed GDip in Digital Transformation in Advanced Manufacturing has been designed for engineers in industry and recent engineering graduates who wish to pursue a career in the manufacturing sector. Students complete four (4) graduate-level courses (12 credit hours total), including ENGR 5223G Advanced Manufacturing Processes and Methodologies, ENGR 5271G Innovative Design Engineering, and two elective courses from the list below, providing both theoretical understanding and practical training in advanced manufacturing methodologies and digital tools:

Core Courses:

- ENGR 5223G - Advanced Manufacturing Processes and Methodologies
- ENGR 5271G - Innovative Design Engineering

Elective Courses:

- ENGR 5015G - Advanced Computer Aided Geometric Design
- ENGR 5243G - Mechanics and Dynamics of Machine Tools
- ENGR 5245G - Micro and Nano Manufacturing
- ENGR 5260G - Advance Robotics and Automation
- ENGR 5005G - Special Topics*

*Registration in Special Topics course(s) are subject to approval by the Graduate Program Director, must be relevant to the GDip program scope, and must be

confirmed as enabling the student to meet the program learning outcomes and degree-level expectations for the graduate diploma.

The diploma can be completed on a part-time or full-time basis and it provides a flexible pathway for professionals seeking to upskill in advanced manufacturing or transition into leadership roles in smart-industry settings.

The program name and nomenclature accurately reflect the program's scope and objectives. It signals a focused, graduate-level credential that builds on an engineering foundation while specializing in advanced manufacturing systems.

Innovative features of the program include integration with existing graduate courses and project-based learning for resource efficiency and academic continuity, graduate-level assignments emphasizing applied, industry-relevant problem-solving, and a curriculum aligned with high-impact practices that foster expertise in advanced manufacturing systems and digital transformation. These features ensure strong alignment between academic learning and real-world industrial needs in a rapidly evolving sector.

The Digital Transformation in Advanced Manufacturing Graduate Diploma addresses a critical skills gap in a discipline undergoing rapid transformation due to Industry 4.0 adoption, rapid technological innovation, and the increasing need for sustainable, data-driven, and highly efficient manufacturing systems.

Describe any fields and/or any pathways from related programs. (Graduate programs are not required to have fields in order to highlight an area of strength or specialization within a program, nor are they required to provide specific pathways from programs at the college, bachelor, or other level.)

N/A

3 University Mission, Vision, Integrated Academic and Research Plan, and Strategic Mandate Agreement

- *Detail the consistency of the program objectives with the Mission, Vision, Integrated Academic and Research Plan, and Strategic Mandate Agreement*
- *Describe how the program contributes to the University's Mission and Vision*
- *Explain how the program aligns with the goals and priorities outlined in the Faculty's(ies') and University's Integrated Academic and Research Plan*

- *Is this program consistent with the mandate of the sector? (i.e. technically/vocationally/theoretically/academically oriented for universities) Identify how the program fits within one or more areas of strength or growth in Ontario Tech University's Strategic Mandate Agreement*

The act that created the University of Ontario Institute of Technology (Ontario Tech) states: "The objectives of the university are, (a) to provide undergraduate and postgraduate university programs with a primary focus on those programs that are innovative and responsive to the individual needs of students and to the market-driven needs of employers…" The proposed GDip in Digital Transformation in Advanced Manufacturing is a clear example of delivering on this objective. Industry has clearly demonstrated the need for engineers trained in Canada with knowledge of advanced manufacturing systems.

The vision of Ontario Tech is: "Embracing technology with a conscience to advance knowledge and promote sustainability." Advanced manufacturing is central to Canada's economic resilience and sustainability, enabling more efficient, low- waste, and resource-conscious production systems. Through digital transformation, manufacturing plays a key role in reducing environmental impact while improving productivity and global competitiveness. As demand for sustainable and intelligent production systems continues to grow, Industry 4.0 technologies offer viable solutions for modernizing manufacturing operations and supporting Canada's transition toward a more innovation-driven economy.

The proposed GDip aligns well with Ontario Tech's mission to "… equip future leaders to solve complex problems." Modern manufacturing systems are extremely complex. The proposed GDip will give graduates the skill-set needed by the manufacturing industry to allow them to make immediate contributions to this growing field.

In addition, the proposed GDip will be a unique offering amongst engineering programs in Canada, and Ontario Tech will be the only engineering school offering a GDip in Digital Transformation in Advanced Manufacturing.

4 Need, Demand, and Duplication

Provide evidence of the need and demand for the program and how this has been determined, focusing on:

- *Student interest:*

including number of prospective student inquiries, applications and registrations for similar programs, results from surveys/focus groups of existing students, graduates, or professionals in the field (include information about domestic vs. international student interest)

- *Societal need:*
  - ➢ *including evidence of the need for graduates of the program and in which fields (within academic, public, and/or private sectors);*
  - ➢ *employment opportunities for prospective graduates, indicating at least three occupations in which graduates from this proposed program may be employed, selecting at least one using the Ontario Job Futures website and one from the Government of Canada Labour Market Trends website; you may also wish to review the Durham Workforce Authority website and provide any relevant sector portfolio or local/community impact information;*
  - ➢ *for professional programs, a description of the program's congruence with current regulatory requirements*
  - ➢ *note if any employers in the area support the need for this program and include a letter(s) of support as an additional appendix*

The Faculty of Engineering and Applied Science originally engaged the Industrial Advisory Committee, School of Graduate and Post-Doctoral Studies (SPGS), and other stakeholders in the advanced manufacturing sector through ongoing consultations and industry engagement regarding the need to develop targeted graduate-level training in digital transformation and smart manufacturing systems. Despite Canada's strong manufacturing base and its critical role in economic productivity, there are currently no graduate-level programs in Digital Transformation in Advanced Manufacturing in Canada.

According to the recent report by the Innovation, Science and Economic Development Canada (ISED), manufacturing remains a foundational component of Canada's economy, employing approximately 1.7 million people (about 10% of the national workforce) and accounting for a significant share of national economic output and innovation activity. The sector also contributes $114 billion in total compensation and represents approximately 42% of private-sector R&D activity, highlighting its central role in innovation and technological development. However, despite this importance, the sector continues to face challenges related to productivity, skills availability, and uneven technology adoption.

Canada's advanced manufacturing sector is undergoing rapid transformation driven by robotics, additive manufacturing, and data-driven technologies that are essential for improving efficiency, competitiveness, and sustainability. National strategy

directions emphasize accelerating technology adoption, strengthening workforce capabilities, and improving productivity to achieve ambitious growth targets, including increasing manufacturing sales toward $1 trillion and exports toward $540 billion by 2030. Achieving these outcomes requires a workforce with strong capabilities in digital tools, automation, and integrated manufacturing systems.

At the same time, the sector faces a persistent and well-documented skills gap. Industry analysis highlights that skilled and digitally skilled labour shortages remain one of the most significant barriers to growth, alongside uneven technology adoption and lagging productivity performance. These challenges are compounded by the rapid pace of technological change associated with Industry 4.0, which is reshaping how manufacturing systems are designed, operated, and optimized across global supply chains.

There are clear need and demand from industry to train engineers and professionals with expertise in digital transformation in advanced manufacturing in Canada. Through consultations and academic development discussions, there has been repeated interest in upskilling graduates and professionals who did not receive exposure to modern digital manufacturing tools during their undergraduate studies. Projected enrollment is expected to support a steady cohort of learners annually, with potential for future collaboration with industry stakeholders to align training pathways with evolving workforce needs and national productivity goals.

- *Describe how the program is distinct from other programs at Ontario Tech. Is it reasonable to anticipate this program might affect enrolment in other related programs? If so, how might this be addressed?*

The GDip in Digital Transformation in Advanced Manufacturing is distinct from other programs at Ontario Tech. It is designed for individuals who may not have had significant exposure to contemporary advanced manufacturing and digital manufacturing knowledge during their undergraduate studies, and are now seeking to develop expertise in these areas to support their professional advancement.

The GDip will not affect enrolment in other programs at Ontario Tech.

- *Is this a new area of study? Please explain:*

The GDip utilizes the already existing graduate Mechanical and Mechatronics Engineering programs and also builds upon the undergraduate Manufacturing

Engineering program, so it is not a new area of study. However, it is a further/incremental step into expanding Ontario Tech's offerings that contribute to the training needs of the manufacturing sector.

- *Identify similar or complementary programs offered by other universities with specific reference to Ontario and Canadian examples.*
- *Provide additional overall comment on the justification for any duplication*

The GDip in Digital Transformation in Advanced Manufacturing is unique at the graduate level and there are no similar programs available in Ontario and in Canada. While no exact graduate diploma in Digital Transformation in Advanced Manufacturing currently exists in Ontario, there are related credentials and programs that signal demand in this field including Advanced Manufacturing Graduate Certificate in Sheriden College and Master of Engineering in Advanced Manufacturing at Humber College.

5 Enrolment Information

- *Please complete Table 1 and provide, in paragraph form, information regarding enrolment projections*
- *Please determine the academic year when the program enrollment will reach a steady-state and add an asterisk (*) in the corresponding box beside the number*
- *This table should reflect normal estimated program length. (Table may be adjusted as necessary.)*

Table 1: Projected Enrollment by Academic and Program Year

	Academic Year					
	2026-2027	2027-2028	2028-2029	2029-2030	2030-2031	2031-2032
Level of Study						
Diploma year 1	10	10	20*	20	20	20
Total Enrollment	10	10	20	20	20	20

Projected enrollment would initially be around 5-10 students per year. The planned steady-state is 20 students per year. Note these directed offerings may be offered in alternate formats other than the traditional 12-week semester.

6 Admission Requirements

Outline the formal admission requirements as they will appear in the Academic Calendar

Minimum Academic Requirements for Graduate Diploma Programs:

- Hold a four-year honours degree or its equivalent from a recognized institution in the area of graduate study or a closely related subject.
- A minimum B-minus average (GPA: 2.7 on a 4.3 scale).
- Applicants that have a degree in subject areas outside of engineering or those who do not meet the minimum GPA requirements, but have relevant engineering experience will be evaluated on an individual case-by-case basis.

- *Explain how the program's admission requirements are appropriate for the program objectives and program learning outcomes: How will they help to ensure students are successful? How do they align with the learning outcomes of the program?*
- *Explain in detail any additional requirements for admission to the program such as minimum grade point average, special language, portfolio, etc. (and how the program recognizes prior work or learning experience, if applicable)*
- *Indicate the programs from which students may be drawn*

Graduates from any Canadian accredited undergraduate engineering program (or its equivalent) will be eligible to enrol in the GDip, including Automotive Engineering, Industrial Engineering, Manufacturing Engineering, Mechanical Engineering and Mechatronics Engineering.

To provide applicants looking to re-skill for the manufacturing sector the potential opportunity to do the GDip in Digital Transformation in Advanced Manufacturing, applicants from non-engineering programs or those who do not meet the minimum GPA requirements will be considered on a case-by-case basis.

7 Program Requirements, Learning Outcomes, Degree Level Expectations (DLEs), and Program Structure

Participate in program learning outcome (PLO) development sessions and complete the PLO mapping document to describe what the student will know or be able to do by the end of the program and how that knowledge or skill will be demonstrated; include the mapping document as an appendix; refer to the new PLOs and PLO mapping document to complete the questions in this section.

Please see Appendix A for a list of the Program Learning Outcomes, Degree Level Expectations, Courses, and Assessments.

Discuss how the design, structure, requirements, and delivery of the program are appropriate for the program learning outcomes, program outcomes, and Degree Level Expectations. Guidance on program objectives and program-level learning outcomes, including examples, is available here. Be sure to include the following in your response:

- *The sequencing of required courses or other learning activities*
- *The mode of delivery of the program (is this an online or hybrid program?)*
- *Will the program be offered full-time and/or part-time; what is the program length for both full-time and part-time students; how will the program requirements reasonably be completed within the proposed time?*
- *A clear indication of how faculty scholarship and research is integrated; for researched-focused graduate programs, provide a clear indication of the nature and suitability of the major research requirements for degree completion; for professional graduate programs, how an understanding of research in this area will be reflected in curriculum and/or assessment*
- *How the program will be administered*
- *The unique curriculum or program innovations or creative components in this program*
- *The ways in which the curriculum addresses the current state of the discipline*
- *If the program is to be accredited, include with the above details about the accreditation requirements and add the accreditation tables, if available, as an additional Appendix*

The program requires the completion of four (4) graduate-level courses (12 credit hours in total) including ENGR 5223G Advanced Manufacturing Processes and Methodologies, ENGR 5271G Innovative Design Engineering, and two elective courses. from the list below, providing both theoretical understanding and advanced training in smart manufacturing methodologies and digital tools:

Core Courses:

- ENGR 5223G - Advanced Manufacturing Processes and Methodologies
- ENGR 5271G - Innovative Design Engineering

Elective Courses:

- ENGR 5015G - Advanced Computer Aided Geometric Design
- ENGR 5243G - Mechanics and Dynamics of Machine Tools
- ENGR 5245G - Micro and Nano Manufacturing
- ENGR 5260G - Advance Robotics and Automation
- ENGR 5005G - Special Topics*

*Registration in Special Topics course(s) are subject to approval by the Graduate Program Director, must be relevant to the GDip program scope, and must be confirmed as enabling the student to meet the program learning outcomes and degree-level expectations for the graduate diploma.

Delivery mode for the selected four courses will be hybrid. In addition to the traditional 12-week semester delivery, the courses may be delivered in compressed time formats to meet the needs of industry partners.

To facilitate access to all potential students, part-time studies are permitted. In particular, engineers in industry may wish to pursue a graduate diploma program through part-time studies.

The courses available in the program cover the state-of-the-art in advanced manufacturing and are taught by instructors with subject matter expertise. The courses were developed in conjunction with subject matter experts from industry. An Industrial Advisory Committee made up of representatives from the manufacturing industry will help ensure the courses remain relevant and current.

All course deliverables will ensure that the students are meeting the program learning outcomes and support the achievement of Graduate Degree Level Expectations (available in Appendix A). Assessments will not only measure content knowledge but also foster advanced competencies expected at the graduate level.

Provide evidence that each graduate student is required to take a minimum of two-thirds of the course requirements from among graduate-level courses

All courses that are required for the GDip are graduate level.

Describe how the principles of Equity, Diversity, Inclusion, and Decolonization have been considered:

- *Does the program contain concepts, materials, or resources from scholars/professionals who are part of one or more historically marginalized groups?*
- *Are multiple perspectives represented in the program, such as those offered by those who are Indigenous, Black, Persons of Colour, and/or 2SLGBTQIA+?*
- *How has accessibility been considered? More specifically, have the needs of students with disabilities been integrated into the program design (e.g., the ways that students are asked to demonstrate their learning)? Please provide information beyond the services offered by Student Accessibility Services*
- *Discuss how the program structure and delivery reflect universal design for teaching and learning and how the potential need to provide mental or physical health accommodations have been considered; describe how the program structure and delivery methods promote student well-being and resiliency and any elements that support a sense of community in the program*
- *Will this program provide space to allow for the discussion of other viewpoints outside the "dominant, Western narrative"?*

The Faculty of Engineering and Applied Science (FEAS) is fully committed to Equity, Diversity, and Inclusion (EDI), including in all its courses and all its research activities. The material covered in this program considers the development of manufacturing systems that serve the public, so it is critical that EDI considerations are incorporated into the development of these systems ensuring these systems are accessible for all users. The courses, where appropriate, will cover these issues to ensure that students understand the importance of designing accessible systems.

As an example of its focus on EDI, FEAS has the Women in Engineering Society with the following goals:

- We foster a welcoming and engaging space for female engineering students to create a sense of community on and off campus.
- We connect female students to future employers and engineering career opportunities across Canada and showcase successful female engineering professionals.
- We equip our students with professional skills, connections, and inspiration to

prepare them for their professional careers.
- We give back to the community by running outreach events to encourage and inspire young women to pursue an education in engineering.

In addition to the above, FEAS's Engineering Outreach offers programs targeting Indigenous and black students to inspire and encourage them to pursue engineering.

For students who have accommodation needs, existing Student Accessibility Services (SAS) supports will be available to students who require specific accommodations.

Does this Program contain any Indigenous content? ☐ Yes ☒No ☐ Unsure

For more information on how Indigenous content is defined at Ontario Tech University and how to consult with the Indigenous Education Advisory Circle (IEAC), please refer to the Protocol for Consultation with the Indigenous Education Advisory Circle.

Has the IEAC been contacted ☐Yes ☒ No If yes, when? N/A

What was the advice you received from the IEAC, and how has it been included in your proposal?

N/A

Did the IEAC ask you to return the proposal to them for review? ☐ Yes ☐ No

If yes, have they completed their review? ☐ Yes ☐ No ☐ N/A

Is there an experiential learning component (e.g. workplace learning, co-op, internship, field placements, service learning, mandatory professional practice) to the program? If yes, please describe this component in 2500 words or less. Include confirmed partners, duration of the experiential learning component(s), and projected number of placements (where applicable) and provide letters of support.

N/A

8 Assessment of Teaching and Learning

Using examples from the PLO mapping document, address the following. Please see Guidance on Assessment of Teaching and Learning and speak with the Teaching and Learning Centre (TLC) for advice on how to satisfy these criteria.

- *Appropriateness of the proposed methods for the assessment of student achievement of the intended program learning outcomes and Degree Level Expectations*
- *Describe plans for documenting and demonstrating:*
  - ➢ *The overall quality of the program*
  - ➢ *Whether the program is achieving in practice its proposed objectives;*
  - ➢ *Whether the students are achieving the program learning outcomes and a level of performance consistent with the Degree Level Expectations; and*
  - ➢ *How the resulting information will used to inform continuous program improvement*

The learning outcomes for the program are achieved through a combination of graduate-level course work, including assignments, exams, projects, and presentations.

Learning activities and materials in graduate courses will be carefully designed to ensure that learners are deliberately exposed to study, the majority of which is at, or informed by, the forefront of engineering theory and practice.

The courses have been designed to give students key knowledge in advanced manufacturing as well as an opportunity for advanced development of generic skills such as communication and teamwork. In addition, there will be scholarly activities of independent investigation, report writing, and presentations.

Throughout the curriculum, learning activities are planned, and student progress will be monitored to ensure that safety, professional guidelines, and ethical responsibilities relevant to engineering are modelled, developed, and evaluated.

The courses available in the program cover the state-of-the-art in digital transformation in advanced manufacturing and are taught by instructors with subject matter expertise. The courses were developed in conjunction with subject matter experts from industry. An Industrial Advisory Committee made up of representatives from the manufacturing industry will help ensure the courses remain relevant and current.

Student feedback surveys will be completed at the end of each course delivery to gather feedback. As well student performance in each course will be monitored yearly. The Graduate Program Director responsible for the program will review both the student feedback surveys and the student performance to ensure that the

program is meeting its goals. In addition, the Industrial Advisory Committee will also provide feedback on the program delivery. Insights from these surveys and reviews will be documented and used to identify specific areas for improvement, inform curriculum adjustments, and guide enhancements to teaching and learning strategies.

Any required changes to curriculum, assessment methods, delivery, or administration are implemented as appropriate and feasible at the discretion of the Faculty Dean. Curricular changes are then submitted and documented through appropriate Faculty and University committees consistent with standard curricular change policies and procedures as identified in the IQAP.

To ensure sustained quality, program effectiveness will be assessed and monitored through the cyclical review process, providing actionable insights for continuous improvement. In addition to the external review every eight years, Ontario Tech's Academic Resource Committee (ARC) requires a brief report at program launch and a full report one-year after the launch of a new program. The one-year report will ask the program to review enrollment data, admission averages, and provide an analysis of successes and challenges encountered in the first year. If there are areas of concern and it is deemed necessary, ARC will make recommendations to enhance program effectiveness and student success and may request a subsequent report. If If required, the subsequent report will address key curricular and student data (e.g., GPA, retention data, etc.) as well as any outstanding recommendations from the one-year report. Pending the ARC's review, further documentation may be required of the program for ongoing monitoring.

9 Calendar Copy and Program Map(s)

- *Provide, as an Appendix using the template provided, a clear and full calendar copy. The template ensures consistency across all programs in the Academic Calendar*
- *Provide, as an Appendix, a full list of all courses included in the program including course numbers, titles, and descriptions. Please indicate clearly whether the courses are new/existing. Include full new course proposals for new courses, the template for which will be provided by CIQE. Include the most recent course descriptions for existing courses. If you are making changes to the existing courses, also include a course change form. In an Appendix referenced in Section 11 below, you will note which faculty members are expected to teach in the program and who is responsible for developing any new courses.*

Please see Appendix B for the Calendar Copy for the program and Appendix C for the List of Program Courses and Descriptions.

10 Consultation

- *Describe the expected impact of the new program on the nature and quality of other programs delivered by the home and collaborating Faculty(ies) and any expected impact on programs offered by other Faculties*
- *Outline the process of consultation with the Deans of Faculties that will be implicated or affected by the creation of the proposed program*
- *Provide letters of support for the program from Deans at Ontario Tech and/or from other institutions/partners*
- *Describe any consultation undertaken with regard to the principles of Equity, Diversity, Inclusion, and Decolonization not covered in Section 7 above*

Consultations were held within the Faculty of Engineering and Applied Science, including discussions with the Graduate Program Directors, department faculty, and the Dean's Office. Input from the School of Graduate and Postdoctoral Studies (SGPS) will ensure alignment with Ontario Tech's graduate credential framework.

The Office of the Registrar and the SPGS were both consulted in the development of this program. No issues were raised.

As noted above, there will be no impact on other programs offered at Ontario Tech.

11 Resource Requirements

Resource Summary
Provide a brief summary *statement of the funding requirements and the rationale. Please consult with the Provost's Office early regarding any resource implications described in this section.*

As the program is leveraging the existing graduate engineering courses, it is anticipated there will be no major resource requirements. By leveraging shared graduate engineering course offerings, the GDip enhances resource efficiency without diminishing the quality of graduate course offerings.

Graduate-level course deliverables ensure academic rigor and differentiation, maintaining clear boundaries between credential levels.

The resource requirements outlined in Section 11 have been reviewed by the Academic Resource Committee (ARC): 9 December 2025
(date of review)

11.1 Human Resource Requirements

Faculty - New and Existing Requirements

Complete, as an Appendix, the table detailing the list of faculty committed to the program and provide, in paragraph form below, the following:

- *Clear evidence that faculty have the recent research or professional/clinical expertise needed to sustain the program, promote innovation, and foster an appropriate intellectual climate*
- *Additional information to demonstrate how supervisory loads are distributed in light of qualifications and appointment status, if not clear from the table*
- *Evidence of the participation of a sufficient number and quality of faculty who will actively participate in the delivery of (teach and/or supervise) the program and achieve the goals of the program and foster the appropriate academic environment, contribute substantively to the program, and commit to student mentoring*
- *Describe the role of any sessional/part-time faculty and any adjunct faculty; provide an approximate percentage used in the delivery of the program and the plans to ensure the sustainability of the program and quality of the student experience*
- *Explain the provision of supervision of any experiential learning opportunities; how will supervisory loads be distributed?*

Provide the CVs of all faculty who appear in the table of faculty committed to the program. These CVs should form a separate document with a table of contents and should have all CVs in alphabetical order by surname. CVs should be submitted in a consistent format.

Please see Appendix D Faculty Information for a table detailing the list of faculty committed to the program and a separate file for Curriculum Vitae (provided to the Quality Council for review).

The program will be delivered by three existing faculty members in the Faculty of Engineering and Applied Science with advanced manufacturing engineering expertise including Ahmad Barari, Remon Pop-Iliev, Amirkianoosh Kiani, and Jana Abou-Ziki.

Some courses may be taught by sessional instructors with relevant expertise.

There is no supervision of experiential learning opportunities in this program.

Are additional faculty required to be able to offer this program? ☐ Yes ☒ No

Please explain, i.e. Why would new faculty not be required? Would this change over time? What year will the faculty hire be required, and are there additional criteria associated with the hiring requirement (e.g. enrolment levels, program growth, University or Faculty priorities)?

Since the course delivery will leverage the graduate engineering course offerings, no additional human resources will be required, unless the number of students enrolled reaches the point where more than one section of a given course needs to be offered. Details and timing of proposed hirings are coordinated and confirmed with the Provost's Office through regular operational conversations.

Additional Academic and Non-Academic Human Resources

Give details regarding the nature and level of TA support required by the program, the level of administrative (i.e. new program director appointment), and academic advising support, etc. If new staff resources are needed, provide further details below.

No. TAs will be required unless the enrolment is large enough to warrant it (exceeds 40-50 students).

Are additional staff required to be able to offer this program? ☐ Yes ☒ No

If yes, please outline what year the staff hire(s) will be required and any additional criteria associated with the hiring requirement (e.g. enrolment levels, program growth, University or Faculty priorities):

N/A

11.2 Learning Resources

Provide an opening statement to describe the resources to sustain the quality of scholarship and research activities of undergraduate and graduate students, enhance the learning and teaching environment, promote student well-being and resiliency in the learning and teaching environment; refer as noted to the two standard Appendices.

The program will leverage existing institutional resources and targeted supports, including access to modern facilities, technology-enabled classrooms, and research infrastructure. Dedicated student services, academic advising, and wellness initiatives will promote student well-being and resiliency, ensuring a supportive and inclusive learning environment.

Please see Appendix E for a University statement concerning Learning Resources.

11.3 Information Technology

Provide a summary of evidence that there are adequate information technology resources to sustain the quality of scholarship and research activities of undergraduate and graduate students; address any unique requirements including renovations to existing space, Faculty-specific space/equipment, etc.; are there additional technology requirements specific to being able to successfully launch this program? Refer as noted to the standard Appendix.

The institution provides robust information technology resources to support high-quality scholarship and research activities for both undergraduate and graduate students. These include access to modern computing facilities, high-speed networks, secure data storage, and discipline-specific software to enhance teaching and learning. Existing spaces are equipped with technology-enabled classrooms and research infrastructure ensuring the program can be successfully implemented and sustained.

Please see Appendix F for a University statement concerning information technology services.

Supporting information for online and hybrid programs

Where applicable, please provide the following details for online and hybrid programs:

- *Describe the adequacy of the technological platform to be used for online delivery*
- *Describe how the quality of education will be maintained*
- *Describe how the program objectives will be met*
- *Describe how the program learning outcomes will be met*
- *Describe the support services and training for teaching staff that will be made available*
- *Describe the sufficiency and type of supports that will be available to students*
- *How has accessibility been considered?*
- *What strategies have been considered to accommodate students with disabilities?*
- *Have the principles of Universal Design been considered?*
- *Will course content be offered in both written and audible forms (e.g., closed*

captioning, transcriptions)?

- *Is course content designed logically and is it easy to follow with limited instruction?*
- *Are assignment expectations clear (i.e., a rubric)?*
- *Have the needs of students with limited or unreliable access to wi-fi been considered (e.g., breaking down pre-recorded lectures into maximum 10-minute videos)?*

The program will utilize existing University IT infrastructure. Ontario Tech is a laptop university where students bring their own laptop devices and are provided access to a software portal where they can download any necessary software required for their courses, including a variety of engineering specific packages such as SolidWorks, Siemens NX, Tecnomatix, Hyperworks, MATLAB/Simulink, Fusion 360, and Nastran.

The hybrid delivery of the courses will make use of Ontario Tech's flexible hybrid classrooms that allow for synchronous delivery with active participation from students both in room and online and the ability for all students to see all other students.

11.4 Financial Support for Graduate Students

Provide evidence that financial assistance for students, including TA-ships where applicable, will be sufficient to ensure adequate quality and numbers of students.

No financial assistance will be provided as this is a professional program.

11.5 Space and Infrastructure Requirements

- *Provide evidence that there are adequate resources to sustain the quality of scholarship and research activities of undergraduate and graduate students, including information about laboratory and research space access, where applicable, and office space; address any unique requirements*
- *Highlight the change in the number of faculty, students, administrative staff, etc. as well as information on changes in equipment and activities; renovation of existing space; or whether the current space allocation will accommodate the new program*
- *Are there additional space requirements specific to being able to successfully launch this program?*

The hybrid delivery of the courses and the leveraging with the existing graduate engineering course delivery will have minimal impact on classroom requirements.

No additional space requirements are required.

11.6 Other Resource Implications

- *Note here if this new program may impact enrolment agreements with other institutions/external partners that exist with the Faculty/Provost's office. Indicate if the new program will require changes to any existing agreements with other institutions or will require the creation of a new agreement. Please consult with CIQE (ciqe@ontariotechu.ca) regarding any implications to existing or new agreements*
- *Are there inter-Faculty teaching implications?*
- *If this is a new joint program with another institution, indicate how the program will be administered and how program reviews will be conducted (refer to the Ontario Tech Institutional Quality Assurance Process Policy for more information)*

The program does not impact any existing agreements Ontario Tech has with institutional and external partners. In addition, there are no inter-Faculty implications.

12 Closing Statements Regarding Program Quality

- *Please summarize the appropriateness of the faculty's collective expertise and how it contributes substantively to the proposed program; use indicators to provide evidence of the quality of the faculty (e.g., qualifications, funding, honours, awards, research, innovation, and scholarly record).*
- *Please summarize how the program and faculty will ensure the intellectual quality of the student experience.*

The GDip in Digital Transformation in Advanced Manufacturing has been designed in consultation with experts from the Industry Advisory Committee and the SPGS to meet the demands of this rapidly growing sector. The faculty has several professors with manufacturing expertise as well as access to a slate of industry experts from our partner companies who can consult with the courses delivery as needed. The program has been designed to meet the needs of the manufacturing sector. The faculty has a history of quality program delivery that will serve as a model for the delivery of this new program.

Appendices

Please include at minimum the below. Additional Appendices may be added, as appropriate. Appendices should ultimately be listed below, attached as separate documents, and clearly labelled (A, B, C, etc.) in the order in which they are first mentioned in the document.

Appendix A: Program Learning Outcome Alignment Map to DLEs, Courses, and Assessments
Appendix B: Calendar Copy
Appendix C: List of Program Courses and Descriptions for Existing Courses
Appendix D: Faculty Information
Appendix E: Learning Resources
Appendix F: Information Technology Resources

Items to be separate documents sent to CIQE:
New Program Funding and Tuition form (for CIQE use only)
Budget Spreadsheet (for ARC use only)
Curriculum Vitae (for Quality Council use only)

Graduate Diploma – Digital Transformation in Advanced Manufacturing

PLO #	Program Learning Outcomes
PLO 1	Advanced Manufacturing Technologies Application - Apply emerging technologies such as robotics, additive manufacturing, Digital twins, IoT and Data Analytics and Decision-Making tools to improve production efficiency, flexibility, and quality.
PLO 2	Digital Strategy Development - Evaluate and implement digital transformation strategies aligned with advanced manufacturing goals, integrating business objectives with emerging technologies.
PLO 3	Smart Systems Integration and Process Optimization - Integrate digital systems across lean manufacturing principles and other processes/operations, to enable smooth information flow and smart factory environments leading to optimized processes, reduced waste, and enhanced productivity.
PLO 4	Cybersecurity and Risk Management - Evaluate and mitigate cybersecurity risks in digitally connected manufacturing systems while ensuring data integrity, privacy, and operational continuity.
PLO 5	Communications and Life Long Learning - Communicate complex manufacturing principles and issues clearly to both technical and non-technical audiences. Explain the importance of continuing professional education and the strategies necessary for lifelong learning in the discipline.
PLO 6	Ethical Practices - Assess and articulate the environmental and ethical impacts of digital transformation initiatives and implement responsible manufacturing solutions.

Graduate Diploma – Digital Transformation in Advanced Manufacturing

Graduate Diploma in Digital Transformation in Advanced Manufacturing

Graduate Degree Level Expectations		Depth and Breadth of Knowledge				Research and Scholarship				Level of Application of Knowledge			Professional Capacity/ Autonomy			Level of Communucation Skills			Awareness of Knowledge Limits		
Program Learning Outcomes		LO1	LO2	LO3		LO1	LO2	LO3		LO1	LO2	LO3	LO2	LO4		LO5			LO5	LO6	
Course No.	**Course Title**																				
ENGR 5223G	Advanced Manufacturing Processes and Methodologies	1,2	1,2	1,2		4	4	4		1,2	1,2	1,2	14			3				4	
ENGR 5243G	Mechanics and Dynamics of Machine Tools	1,2		1,2		3,4		3,4		1,2		1,2									
ENGR 5245G	Micro and Nano Manufacturing	1		1		3,4		3,4		1		1									
ENGR 5271G	Innovative Design Engineering	1	1	1		3,4,5	3,4,5	3,4,5		1,2	1,2	1,2	3,5	3,5		3,4,5			4		
ENGR 5015G	Advanced Computer Aided Geometric Design	1,2	1,2			3,4	3,4			1,2,4	1,2,4					3					
ENGR 5260G	Advance Robotics and Automation	1	1			3,4	3,4			1,4	1,4		3,6								
ENGR 5005G	Sp Tp: Digital Twin Engineering	1,2	1,2	1,2		3,4	3,4	3,4		1,2	1,2	1,2	3,5	3,5		3,5					

Degee of Implementation:
Introduced
Reinforced
Mastered

Assessment Legend:			
1	Exam	5	Case Studies
2	Assignment	6	Proposal
3	Presentation		
4	Project		

Digital Transformation in Advanced Manufacturing, Graduate Diploma

General Information

The Graduate Diploma (GDip) in Digital Transformation in Advanced Manufacturing is intended for engineering graduates and professionals seeking to develop expertise in modern manufacturing systems and to lead innovation in the sector. As a key driver of the Canadian economy, the manufacturing industry increasingly requires digitalization to enhance productivity, sustainability, and global competitiveness. This program prepares graduates to meet these evolving demands.

The program emphasizes smart manufacturing systems, automation, and digital design, while building both technical and professional competencies through applied, technology-driven learning. Graduates will develop the analytical and technical skills required to contribute to advanced, interconnected manufacturing environments and support the ongoing digital transformation of the industry.

Designed for both recent graduates and industry professionals holding an undergraduate degree in engineering or a related field, the program equips students with the foundational knowledge required to enter or advance in the manufacturing sector. Students gain a combination of theoretical understanding and practical training in advanced manufacturing methodologies and digital tools.

The program offers a range of courses that enable students to tailor their studies to specific interests and career objectives. Areas of study include digital manufacturing technologies and tools, such as computer-aided manufacturing, digital twins, robotics, and data-driven process optimization, with an emphasis on addressing real-world manufacturing challenges.

The diploma may be completed on either a full-time or part-time basis and is fully stackable into the Master of Applied Science (MASc) or Master of Engineering (MEng) in Mechanical Engineering programs. It provides a flexible pathway for professionals seeking to enhance their expertise in advanced manufacturing or to transition into leadership roles within digitally enabled industrial environments.

Admission Requirements

In addition to the general admission requirements for graduate studies, applicants must meet the following program-specific requirements:

Minimum Academic Requirements for Graduate Diploma Programs:

- Hold a four-year honours degree or its equivalent from a recognized institution in the area of engineering or a closely related subject.
- A minimum B-minus average (GPA: 2.7 on a 4.3 scale).

- Applicants that have a degree in subject areas outside of engineering or those who do not meet the minimum GPA requirements, but have relevant engineering experience will be evaluated on an individual case-by-case basis.

Graduates from any Canadian accredited undergraduate engineering program (or its equivalent) will be eligible to enrol in the GDip, including: Automotive Engineering, Industrial Engineering, Manufacturing Engineering, Mechanical Engineering and Mechatronics Engineering.

Note, the consideration of applicants from non-engineering programs or those who do not meet the minimum GPA requirements is to provide applicants looking to re-skill for the digital manufacturing sector the potential opportunity to do the GDip in Digital Transformation in Advanced Manufacturing.

Part-time studies

To facilitate access to all potential students, part-time studies are permitted. In particular, engineers in industry may wish to pursue a graduate diploma program through part-time studies.

Graduate diploma requirements

For the graduate diploma, students must complete the four courses below for a total of 12 credits, including ENGR 5223G Advanced Manufacturing Processes and Methodologies, ENGR 5271G Innovative Design Engineering, and two elective courses from the below list.

Note: Graduate diploma students are not permitted to take courses outside of their home program course listings for program credit. In addition, they may not take any senior fourth-year undergraduate courses from the Faculty of Engineering and Applied Science in lieu of a graduate course.

Course listings

Core Courses:

- ENGR 5223G - Advanced Manufacturing Processes and Methodologies
- ENGR 5271G - Innovative Design Engineering

Elective Courses:

- ENGR 5243G - Mechanics and Dynamics of Machine Tools
- ENGR 5245G - Micro and Nano Manufacturing

- ENGR 5015G - Advanced Computer Aided Geometric Design
- ENGR 5260G - Advanced Robotics and Automation
- ENGR 5005G - Special Topics*****

*****upon approval by Graduate Program Director and relevant to the scope.

Program learning outcomes

The following outcomes outline the knowledge and skills students will have achieved upon completion of the program.

Program Learning Outcomes - Digital Transformation in Advanced Manufacturing, Graduate Diploma

Appendix C - List of Program Courses and Course Descriptions

List of Program Courses

The program consists of four graduate-level courses (12 credits total), including ENGR 5223G Advanced Manufacturing Processes and Methodologies, ENGR 5271G Innovative Design Engineering, and two elective courses from the list below selected from the following:

Course Code	Course Name	
ENGR 5223G	Advanced Manufacturing Processes and Methodologies	Existing Course - course description enclosed
ENGR 5271G	Innovative Design Engineering	Existing Course - course description enclosed
ENGR 5015G	Advanced Computer Aided Geometric Design	Existing Course - course description enclosed
ENGR 5243G	Mechanics and Dynamics of Machine Tools	Existing Course - course description enclosed
ENGR 5245G	Micro and Nano Manufacturing	Existing Course - course description enclosed
ENGR 5260G	Advance Robotics and Automation	Existing Course - course description enclosed
ENGR 5005G	Special Topics	Existing Course - course description enclosed

ENGR 5223G - Advanced Manufacturing Processes and Methodologies
This course is about implementing advanced manufacturing processes and methodologies into production operations as the strategy for achieving reductions in inventory costs, faster manufacturing turnaround times, fewer faulty products and using less floor space for production. It addresses the next generation manufacturing and production techniques that take advantage of the opportunities offered by selective use of new materials and emerging technologies for high efficient machining, coating, forming, assembly operations, etc. Virtual manufacturing methodologies and multi-objective optimization in terms of design, performance, safety, cost and environment as well as advanced manufacturing methodologies, such as lean manufacturing, are also addressed.

ENGR 5271G - Innovative Design Engineering
This course introduces students to the theory, tools and techniques of innovative design engineering and creative problem-solving. The design process in engineering is considered and addressed by stressing its most creative aspects, especially problem definition and concept generation, through emphasis on current industry best practices. A short history of creative engineering solutions, effective methods for communicating new ideas, techniques for creative solutions, and cost effectiveness and tools for innovation are considered and thoroughly addressed. The course involves fundamental coverage of principles of inventive problem solving (TRIZ). TRIZ provides a dialectic way of thinking, i.e., to understand the problem as a system, to make an image of the ideal solution first and to solve contradictions. The course involves hands-on use of computer-aided design (CAD) tools and project management software in engineering applications.

ENGR 5015G - Advanced Computer Aided Geometric Design
This course will cover advanced computational topics in the design of geometric objects and various techniques for mathematically representing, modeling and inspecting complex curves and surfaces. The course provides an advanced study of geometric modeling and the required methods to describe the shape of complex three-dimensional objects for engineering design and computer-aided engineering applications. The course also covers the engineering applications of curves and surface geometric modeling, reconstruction of 3-D CAD models from digital scans, accuracy and robustness of geometric computations, geometric tolerances and the principles of coordinate metrology-based surface inspection methods.

ENGR 5243G - Mechanics and Dynamics of Machine Tools
This course covers the advanced mechanics and dynamics of machine tools, including applications to automotive machining processes. The course includes advanced topics in the theory of metal removal, mechanics of chip formation, forces, statics and dynamics of machine tool structures. Also, self-excited vibration (chatter), sensor assisted machining and high speed machining of materials will be covered.

ENGR 5245G - Micro and Nano Manufacturing
This course will cover principles of fabrication and characterization technologies in micro and nano scale to learn major applications and principles of micro/nano systems in photonics, ICs and MEMS, and biomedical devices. The course will address specific techniques, such as photolithography, thin-film deposition, Chemical Vapor Deposition (CVD), Physical Vapor Deposition (PVD), advanced lithography, etc. The optical, electron and probe microscopy techniques for imaging at the micro and nano scale will be discussed. Also, the current status and future of micro and nano manufacturing in the field of microelectronics, photonics and biomedical engineering will be discussed in this course.

ENGR 5260G - Advanced Robotics and Automation
This course builds upon the knowledge students have gained in a first robotics course to cover more advanced kinematics topics and their application to more complex robotic systems such as redundant manipulators and parallel mechanisms. Topics covered include point, direction, line and screw motion descriptions; homogeneous transformations; line and screw coordinates; quaternion representations; inverse displacement solutions by analytic, root finding, hybrid and numerical methods; appropriate frames of reference; screw systems and transforms; local and globally optimum solutions of redundant rates; over determined and near degenerate solutions; singularity analysis; and parallel manipulator kinematics.

ENGR 5005G - Special Topics
Presents material in an emerging field or one not covered in regular offerings. This course may be taken more than once, provided the subject matter is substantially different.

Appendix D – Faculty Information

Please include here only those currently at the institution and affiliated with the program. Examples in purple to be removed.
Where available, link each faculty name to their Research or Profile page on the website.

Name and Faculty Status/Rank	Terminal Degree	Home Faculty/Unit	Areas of Expertise	Supervisory Privileges and Role in New Program (Note if faculty will be teaching and/or supervising in the program; indicate primary supervisor by asterisks)	Total Graduate Teaching (including New Program) (Note in bold type if faculty is a core course developer for the program)
Jana Abou Ziki	PhD	FEAS	• Spark Assisted Chemical engraving (SACE) • Hybrid additive-subtractive micro-manufacturing • Surface functionalization • Microfluidic devices • Advanced manufacturing • Electroplating and electroforming of 3D printed parts	Graduate Faculty* Teaching core courses	3-4 courses (undergraduate/graduate level)
Ali Sayyed Hosseini	PhD	FEAS	• Additive Manufacturing • Subtractive Manufacturing • Modeling and Simulation of Machining Operations • Machining Difficult-to-Cut Materials • Surface Integrity • Material Behavior • Design and Optimization	Graduate Faculty* Teaching core courses	3-4 courses (undergraduate/graduate level)
Amirkianoosh Kiani	PhD	FEAS	• Laser Materials Processing • Micro/Nano Manufacturing • Nano Energy Materials • Nano Opto-Electronic Materials	Graduate Faculty* Teaching core courses	3-4 courses (undergraduate/graduate level)

			• Nano Sensing Materials		
Remon Pop-Iliev	PhD	FEAS	• Processing Functionally Graded Polymeric Composites and Nanocomposites • Fabrication of Biodegradable Nanocomposites for Bone Tissue Regeneration • Manufacturing Multifunctional Nanocomposite Fibers • Rapid Rotational Foam Molding • Innovative Design Engineering Education	Graduate Faculty* Teaching core courses	3-4 courses (undergraduate/graduate level)
Ahmad Barari	PhD	FEAS	• Advanced Manufacturing Technologies • Digital Manufacturing • Precision Manufacturing • Measurement Uncertainty • 3D Coordinate Metrology • Additive Manufacturing and Rapid Prototyping of Sculptured Surfaces • Manufacturing Surface Integrity • Surface Quality, Surface Tribology • Reverse Engineering • Surface Reconstruction • Structural Design Optimization • Topology Optimization • FEA-Based Design Optimization	Graduate Faculty* Teaching core courses	3-4 courses (undergraduate/graduate level)

Scott Nokleby	PhD	FEAS	• Robotics • Mechatronics • Mechanisms • Automation • Advanced Kinematics of Robots and Mechanisms • Redundant Manipulator Systems • Mobile-Manipulator Systems • Mechanism and Robot Design • Optimal Design	Graduate Faculty* Teaching core courses	3-4 courses (undergraduate/graduate level)
Haoxiang Lang	PhD	FEAS	• Mechatronics • Autonomous Robotics • Visual Serving and Advanced Controls • Machine Learning	Graduate Faculty* Teaching core courses	3-4 courses (undergraduate/graduate level)

Existing Non-Financial Student Support Services

School of Graduate and Post-Doctoral Studies

Quality graduate and postdoctoral education combines teaching, research, professional development, disciplinary community involvement and personal growth. It is by nature a shared responsibility between students, faculty members, the programs and a large number of support units, with overarching administration being provided by the School of Graduate and Postdoctoral Studies.

The School of Graduate and Postdoctoral Studies (SGPS) furthers the scholarly mission of the university by providing academic and administrative support to the university's postgraduate educational, research, innovation and international activities. Our responsibilities include graduate program development, graduate enrolment management, oversight of academic and quality standards, and the implementation of policies and practices that enhance graduate/postdoctoral scholarly success, career readiness and personal growth. SGPS supports prospective, new and current graduate students through many administrative services including, but not limited to, recruitment, admission, registration, funding and scholarships, orientation, professional development workshops and events, and processing of final theses, projects and papers. SGPS is a single-point-of-contact, multifunctional administrative unit tailored to the complete "life-cycle" of graduate students, providing coordinated support to students and all other stakeholders.

Student Life

Ontario Tech University, as a relatively small campus community, has a centralized delivery model for many student supports. All undergraduate students have access to an extensive support system that ensures a quality student experience. Each Faculty may provide additional, Faculty- or program-specific supports. In addition to the outlined services below, students may also take advantage of the Campus Bookstore, Housing and Living Resources as well as the Ontario Tech Student Union. Further information can be found at: http://studentlife.ontariotechu.ca/.

Student Learning Centre

Ontario Tech University fosters a high level of academic excellence by working with students, undergraduate and graduate, to achieve educational success. Faculty specific academic resources are available online and include tip sheets and videos. Academic specialists offer one-on-one support services in mathematics, writing, study skills, ESL and physics. With the additional support of peer tutors and workshops, the Student Learning Centre can also accommodate the needs of a specific course or program.

Student Accessibility Services

Ontario Tech University ensures that students with disabilities have equal opportunities for academic success. Student Accessibility Services operates under the

Ontario Human Rights Code and the Accessibility for Ontarians with Disabilities Act. Services and accommodation support are provided for students with documented disabilities and include:

- Adaptive technology training
- Alternate format course material
- Learning skills support
- Testing support
- Transition support for incoming students

Student Accessibility Services also provides inclusive peer spaces, support groups, and skills workshops for students.

Career Readiness

Ontario Tech University offers comprehensive career service assistance, co-op and internship support and a variety of valuable resources to help students along their career paths, including:

- Assistance with creating effective job-search documents
- Career counselling
- Co-op and internships
- Interview preparation
- Job market information
- Job search strategies

The Career Centre hosts a variety of events during the academic year including employer information and networking sessions, job fairs and interviews conducted by leading employers.

Student Engagement, Equity and Inclusion, and ***Indigenous Education and Cultural Services***

The university supports students' successful transition and provides opportunities to develop leadership and professional skills throughout their university career. Services provided include:

- Equity and inclusivity programming and support groups
- Indigenous Education and Cultural Services provides space and supports for students to connect with Indigenous culture and resources
- Opportunities to grow and develop leadership skills through the Ambassador and Peer Mentorship program
- Orientation and events through first year
- Peer mentoring
- Services and supports for international and exchange students

- Specialized programming for first-generation, graduate, Indigenous, international, mature, online, transfer and diploma-to-degree pathways students

Student Mental Health Services

Student Mental Health Services helps students learn how to better manage the pressures of student life. Students can:

- Access short term counselling and therapy services
- Access tools and resources online to learn about mental health and how to maintain good health and wellness
- Attend drop-in sessions
- Participate in events, activities or support groups that promote positive health and well-being
- Work with a mental health professional to address concerns

Students in distress will also be provided with support and counselling as needed. There is no cost to students and services are confidential. For those who need long-term counselling support or specialized mental health services, Ontario Tech University will provide referrals to assist the student in accessing resources in the local community or in the student's home community.

Athletics and Recreation Facilities

Ontario Tech University offers a number of recreation facilities and fitness opportunities to meet all lifestyles and needs. On-campus facilities include the state-of-the-art FLEX Fitness Centre which overlooks Oshawa Creek, five gymnasiums, a 200-metre indoor track, two aerobic/dance studios, the Campus Ice Centre, Campus Fieldhouse, a soccer pitch, a fastball diamond, squash courts and an indoor golf training centre. Students are able to participate in varsity and intramural sports as well as group fitness classes and personal training sessions.

Campus Health Centre

The Campus Health Centre provides assistance in numerous confidential health-care options including:

- A medical clinic with daily access to physician and nursing staff
- Treatment of disease, illness, and injury
- Allergy injections, immunizations, and influenza injections
- Complementary Health Services featuring acupuncture, chiropractic, custom orthotics, massage therapy, nutritional counselling, and physical therapy
- An on-site laboratory (blood work, STI testing, throat swabs, etc.)
- Gynaecological health-care and prescriptions

Student Awards and Financial Aid

Student Awards and Financial Aid (SAFA) is dedicated to helping students understand the variety of options available to finance their education. Budgeting and financial planning are essential to their success and SAFA is on hand to help create the right financial plan. Financial assistance can be in the form of bursaries, employment (both on-campus and off), parental resources, scholarships, student lines of credit and the Ontario Student Assistance Program (OSAP).

Teaching & Learning Centre

The mission of the Teaching and Learning Centre (TLC) at Ontario Tech University is to empower faculty to reach their potential as educators and to create a culture where effective teaching is valued. We champion the scholarship of teaching and implementation of pedagogy. We create valuable teaching and learning professional development experiences. We move Ontario Tech University towards being a leader in teaching excellence, ultimately leading to greater student success.

The TLC provides faculty with a range of tools and facilities to assist them in providing a rich learning experience for students. Experts at the TLC provide support in various areas including curriculum development, multimedia design, learning technology and in the overall improvement of teaching practice.

In addition, the TLC funds teaching-related projects from the Teaching Innovation Fund (TIF) for proposals by faculty members aimed at developing new methods in teaching and learning. The TLC facilitates teaching awards at the University and supports faculty in their application for external awards and funding opportunities that focus on teaching and learning.

Campus Libraries

The Campus Libraries support teaching, learning, and research at Ontario Tech University with facilities, collections, and programming.

Library Collections:

- The Library's total collections budget is $1.7 million.
- Collections include books, e-books, databases, journals, data and statistics, and multimedia materials

Support for teaching and learning:

- A dedicated librarian for each program who provides instruction, research consultations, and collection development
- Research guides for each of Ontario Tech's programs, as well as general guides for citation, copyright, and other broad topics
- Workshops and classes: custom in-class sessions, and general instruction sessions

- Three (3) online modules in Ontario Tech's learning management system, which professors can integrate seamlessly into their course shells

Research supports:

- Research consultations with subject librarians
- Extended support via the Library's virtual reference service
- Support for generative artificial intelligence: citation, copyright, and allowable use of library resources

Scholarly publishing supports:

- Research data management
- Publishing compliance with Tri-Council and other funders
- Support finding and creating open educational resources (OERs)
- Copyright advice and compliance information
- Support for authors, including reviewing author agreements
- Administration of APC waivers for faculty publishing in open access

Facilities:

- The Campus Libraries include the North Oshawa Library, which is the campus' main branch, and the Social Sciences, Humanities, and Education Library, which is located in downtown Oshawa
- The Library's locations include:
    - Extended library hours are available during peak season
    - Groups study rooms are available for student booking
    - Accessible workstations, and sit-stand desks
    - Computers and dual monitor workstations

Information Technology Resources

Ontario Tech University is a leader among North American universities in implementing and using curriculum and industry specific software in a technology-enriched learning environment (TELE). Our unique environment is adapted to each discipline based on faculty requirements and input for optimal student learning. We are committed to providing the greatest value for students' investment in education and technology while studying at Ontario Tech University.

One of the greatest advantages of Ontario Tech University's approach to TELE is that all students have equal access to the same technology, resources and services. Whether you are inside or outside of the classroom, your course-specific software allows you to work on your own or with others and enjoy seamless access to all Ontario Tech online resources. TELE supports Bring-your-own-device (BYOD) which provides you with laptop standards when acquiring the right laptop for your program and software support services onsite and online. An annual fee for TELE covers a wide range of program-specific software, technical software support, exam support and virus protection.

IT Services strives to provide quality services to students at Ontario Tech. To support these objectives, the following components are included:

Wireless network
Wireless internet connection is available in public areas and open-air locations around the Ontario Tech campus where students congregate (North Oshawa and Downtown locations).

Wired network
To ensure the success of the technology-enriched learning environment, a comprehensive data network has been installed on campus. This includes network drops in lecture halls and designated areas as well as network drops for each residence suite.

Ontario Tech students benefit from networked classrooms and learning spaces. Each ergonomically-designed space has data network connection access and electrical connections to ensure battery regeneration. In addition, classrooms include electronic projection equipment and full multimedia support.

Exam support services
IT Services provide hardware, software and technical support during examinations. IT team will be equipped with loaner laptops in the event of major technical issues.

Laptop repairs
IT Services provide on campus repairs on eligible laptop models.

IT Service Desk

The IT Service Desk is equipped with certified technicians and experienced IT professionals offering technical support services on a drop-in, call-in or email basis.

General Use Workstations (GUWs)
Ontario Tech undergraduate students are able to use general workstations available at the library and have access to Bring Your Own Device Technology-Enriched Learning Environment (BYOD TELE) model course-specific software.

Software Support
Software Support specialists are available to students on-site and online to assist in downloading/installing University software and support any other software related issues.

Printing services
Printing services are available to students in the following areas: labs, classrooms, study common areas, the Learning Commons and the Library. All Ontario Tech students receive print credits every year, more Printpacks can be purchased through the Campus Bookstore if students require additional printing services.

Full name of proposed program (as it will appear on the student's transcript): (e.g., Master of Arts in Education; Master of Science in Applied Bioscience)	Graduate Diploma in Energy Systems Engineering
Degree designation and short form: (e.g., Master of Arts, M.A.; Master of Science, M.Sc.)	GDip
Cost recovery program:	☐Yes ☒No
Professional program:	☒Yes ☐No
For graduate diplomas:	☐Type 2 ☒Type 3
Faculty offering the program: (i.e., where the program will be housed/site of academic authority)	Faculty of Engineering and Applied Science
Collaborating Faculty(ies) (if applicable):	N/A
Collaborating institution(s) (if applicable):	N/A
Program delivery location:	Ontario Tech North Campus and Hybrid
Proposed program start date (please change as needed):	Fall 2027
Program proponent/contact:	Akira Tokuhiro, Daniel Hoornweg
Version date (please change as you edit this proposal):	May 14, 2026
Date of Academic Council Approval:	

New Graduate Program Proposal

The program proposal and accompanying documents must address the purpose and content of the new program and the capacity of the unit to deliver a high-quality program. This template is for all proposals for new graduate programs and aligns with Ontario Tech Institutional Quality Assurance Process (IQAP) requirements and, together with the required supporting documents, will help to ensure that all evaluation criteria established by the Quality Council are addressed. All sections of the template are required.

Brief **description of the proposed program[1]:** (NOTE: Text box is formatted to limit the description to 1000 characters or less. This description should be identical to the 'Program Abstract' on page one of the proposal.)

The Energy Systems Engineering Graduate Diploma is designed to prepare energy professionals to understand and lead innovations in energy systems. The program provides an overview of energy systems, focuses on integrating energy components, approaches, conservation, and digital technologies such as automation, robotics, data analytics, and smart design to enhance productivity, sustainability, and competitiveness in energy systems.

Students in the program will complete two core courses that assess energy applications across systems. The broader program is supported through the availability of elective courses with wider energy applications, such as energy storage, HVAC and nuclear facility decommissioning. All courses proposed for inclusion in the program are currently available in the Graduate Academic Calendar. Several new courses, such as Small Modular Reactors, Railway and Transit systems, and electrifying mobility, are expected to be added to the list of elective course options over the next few years.

With the new Energy Engineering Program scheduled to have its first graduates in May 2027, this GDip will support potential continued graduate studies for these students, as well as a comprehensive and pragmatic pathway to graduate studies for professionals working on the quickening energy transition.

[1] NOTE: Following the Quality Council's approval of the proposed program, the QA Secretariat will seek confirmation from the University that this description is appropriate to post on the Quality Council's website (Approved Programs — Ontario Universities Council on Quality Assurance (oucqa.ca))

New Graduate Program Proposal

Graduate Diploma in Energy Systems Engineering
Faculty of Engineering and Applied Science

1 Program Abstract

Please provide a brief overview of the proposed program, summarizing the key points, to be shared with the public, in 1000 characters or less. You may wish to include:

- *A clear statement of the purpose of the program (who is it for, what are the outcomes)*
- *Any program components, such as fields, pathways, or micro-credentials (note that fields, pathways, and micro-credentials are not required)*
- *Nature of the learning environment, noting any distinctive elements, including alternative modes of delivery (including online)*

Note that this statement will be used on a standalone basis and is for external purposes; what do you want potential students/advisors to know about this program? (You may wish to complete this section last.)

The Energy Systems Engineering Graduate Diploma is designed to prepare energy professionals to understand and lead innovations in energy systems. The program provides an overview of energy systems, focuses on integrating energy components, approaches, conservation, and digital technologies such as automation, robotics, data analytics, and smart design to enhance productivity, sustainability, and competitiveness in energy systems.

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With the new Energy Engineering Program scheduled to have its first graduates in May 2027, this GDip will support potential continued graduate studies for these students, as well as a comprehensive and pragmatic pathway to graduate studies for professionals working on the quickening energy transition.

2 Academic Rationale

- *Identify what is being proposed, clearly state the program objectives, and provide an academic rationale for the proposed program (what is being created and why?)*
- *Explain the appropriateness of the program name and degree nomenclature, particularly as they relate to the program objectives*
- *Describe the mode of delivery (in-class, hybrid, online) and any work-integrated learning; outline how the delivery and components are appropriate to support students in achieving the Degree Level Expectations, program outcomes, and Program Learning Outcomes*
- *Discuss how the program addresses the current state of the discipline or area of study*
- *Describe the ways in which the program fits into the broader array of program offerings within the Faculty and the University*
- *Describe any unique curriculum or program innovations, creative components, or significant high impact practice*

Students complete four (4) graduate-level courses (12 credit hours total) from the lists below, providing both theoretical understanding of overall energy systems and practical training in specific energy applications:

At least two courses from the following list:

- ENGR 5014G - Pollution Prevention and Sustainable Engineering
- ENGR 5100G - Advanced Energy Systems
- ENGR 5101G - Thermal Energy Storage
- ENGR 5102G - Fuel Cells and Hydrogen Systems
- ENGR 5965G - Digital Devices and Techniques for Smart Grid Automation and Protection
- NUCL 5100G - Nuclear Plant Systems and Operation
- NUCL 5300G - Advanced Topics in Radioactive Waste Management
- NUCL 5510G - Nuclear Safety Design and Regulation
- NUCL 5600G - Future Role of Nuclear Energy
- NUCL 6140G - Life Cycle Assessment in Nuclear Applications

Elective courses:

- ENGR 5161G - HVAC and Refrigeration Systems Design and Analysis
- ENGR 5410G - Project Management for Engineers or NUCL 5010G - Project Management for Nuclear Engineers
- ENGR 5415G - Foundations of Engineering Management
- ENGR 5511G - Introduction to Railway Systems
- ENGR 5544G - Railway Systems Operation and Maintenance
- ENGR 5925G - Control and Operation of AC Drives
- ENGR 5930G - Adaptive Control

- ENGR 5940G - Intelligent Control Systems
- ENGR 5945G - Mobile Robotic Systems
- ENGR 5005G - Special Topics*
- NUCL 5250G - Power Plant Thermodynamics
- NUCL 5330G - Principles of Nuclear Facility Decommissioning

*Registration in Special Topics course(s) are subject to approval by the Graduate Program Director, must be relevant to the GDip program scope, and must be confirmed as enabling the student to meet the program learning outcomes and degree-level expectations for the graduate diploma.

In addition to the courses above, several courses are under development and would be considered for inclusion as part of the program requirements and approved through the regular program change process. Many have already been offered as Special Topics courses. The proposed courses include:

- Smart Energy Systems
- Waste-to-Energy Systems
- Nuclear-Renewable Hybrid Systems
- Micro Energy Grids
- Cyber Security for Energy Systems
- Measuring and Modelling Sustainability
- Integrated Mobility
- Advanced Community Energy Systems
- Small Modular Reactors
- Nuclear Energy in Society
- Life Cycle Assessment in Energy Applications

The program name and nomenclature accurately reflect the program's scope and objectives. It signals a focused, graduate-level credential that builds on an engineering foundation while specializing in energy systems engineering.

Innovative features of the program include integration with an established suite of relevant and integrated courses with specialization for resource efficiency and academic continuity, graduate-level assignments emphasizing applied research and industry-relevant problem-solving and a curriculum aligned with high-impact practices, fostering expertise in an area vital to Canada's economic and environmental goals.
The Graduate Diploma in Energy Systems Engineering addresses a critical skills gap in a discipline undergoing rapid transition due to sustainability goals, technological innovation, and infrastructure modernization and integration.

Describe any fields and/or any pathways from related programs. (Graduate programs are not required to have fields in order to highlight an area of strength or specialization within a program, nor are they required to provide specific pathways from programs at the college, bachelor, or other level.)

N/A

3 University Mission, Vision, Integrated Academic and Research Plan, and Strategic Mandate Agreement

- *Detail the consistency of the program objectives with the Mission, Vision, Integrated Academic and Research Plan, and Strategic Mandate Agreement*
- *Describe how the program contributes to the University's Mission and Vision*
- *Explain how the program aligns with the goals and priorities outlined in the Faculty's(ies') and University's Integrated Academic and Research Plan*
- *Is this program consistent with the mandate of the sector? (i.e. technically/vocationally/theoretically/academically oriented for universities) Identify how the program fits within one or more areas of strength or growth in Ontario Tech University's Strategic Mandate Agreement*

The act that created the University of Ontario Institute of Technology (Ontario Tech) states: "The objectives of the university are, (a) to provide undergraduate and postgraduate university programs with a primary focus on those programs that are innovative and responsive to the individual needs of students and to the market-driven needs of employers…" The proposed GDip in Energy Systems Engineering is a clear example of delivering on this objective. Industry has clearly demonstrated the need for engineers trained in Canada with knowledge of energy systems and the transition underway.

The vision of Ontario Tech is: "Embracing technology with a conscience to advance knowledge and promote sustainability." Energy is key to the sustainability of Canada, including making cities economically productive and livable, as well as playing a key role in the decarbonization of the energy sector. As the population of Canada continues to grow, climate changes further taxing energy systems, more sector specialists are needed to assist in the energy transition.

The proposed GDip aligns well with Ontario Tech's mission to "… equip future leaders to solve complex problems." Modern energy systems are complex. The proposed GDip will give graduates the skill-set needed by the energy sector to allow them to make immediate contributions to this growing field, nationally and internationally

The proposed GDip will be a unique offering that builds on existing engineering programs, while providing an integrated program that uses existing courses and facilities, e.g., hydrogen, nuclear, smart grid expertise. The program is also designed to be flexible and grow as student interests warrant and the energy transition speeds up in Canada and internationally.

4 Need, Demand, and Duplication

Provide evidence of the need and demand for the program and how this has been determined, focusing on:

- *Student interest:*
  - ➢ *including number of prospective student inquiries, applications and registrations for similar programs, results from surveys/focus groups of existing students, graduates, or professionals in the field (include information about domestic vs. international student interest)*
- *Societal need:*
  - ➢ *including evidence of the need for graduates of the program and in which fields (within academic, public, and/or private sectors);*
  - ➢ *employment opportunities for prospective graduates, indicating at least three occupations in which graduates from this proposed program may be employed, selecting at least one using the Ontario Job Futures website and one from the Government of Canada Labour Market Trends website; you may also wish to review the Durham Workforce Authority website and provide any relevant sector portfolio or local/community impact information;*
  - ➢ *for professional programs, a description of the program's congruence with current regulatory requirements*
  - ➢ *note if any employers in the area support the need for this program and include a letter(s) of support as an additional appendix*

The Faculty of Engineering and Applied Science has a long-standing partnership with the energy sector in Ontario. For example, Ontario Power Generation (OPG) was a founding partner of the university. OPG is a strong proponent for the Energy Systems Engineering program as it complements their broader training program and increasing workforce needs.

Canada is a key member of the Clean Energy Ministerial working toward broader electrification with low carbon electricity. Worker shortfalls in excess of 100,000 employees in the energy sector are projected beyond 2030.

Key industry partners approached during the development of this program include Hydro One, OPG, Bruce Power, Enbridge, local distribution companies such as Elexicon Toronto Hydro, and OPUC, government agencies and institutions such as OEB, IESO, Ministry of Energy, and support firms and consultancies such as WSP, Ellis Don, Aecon, AECOM, and Hatch.

Ontario Tech University also hosted more than 30 international delegations in the last 3 years reviewing energy systems education capacities and partnership opportunities, especially in the nuclear sector, and increasingly in smart grids, transmission, resilient infrastructure, hydrogen, and renewables.

The proposed GDip in Energy Systems Engineering is designed to provide engineers in industry, from a wide range of engineering disciplines, the necessary core competencies in energy engineering that employers need.

- *Describe how the program is distinct from other programs at Ontario Tech. Is it reasonable to anticipate this program might affect enrolment in other related programs? If so, how might this be addressed?*

The GDip in energy systems engineering complements other programs at Ontario Tech. Energy Systems Engineering is designed to enable the development of a broad understanding of how various forms of energy generation and application are integrated and complementary, as well as sufficient technical rigour in specific areas.

The GDip will not affect enrolment in other programs at Ontario Tech.

- *Is this a new area of study? Please explain:*

The GDip in energy systems engineering is unique at the graduate level and builds upon the already existing undergraduate Energy Engineering program as well as related specializations in Electrical, Automotive, Software and Mechanical Engineering.

- *Identify similar or complementary programs offered by other universities with specific reference to Ontario and Canadian examples.*
- *Provide additional overall comment on the justification for any duplication*

Comparable programs at Ontario institutions:
While no exact graduate diploma in Energy Systems Engineering exists in Ontario, there are related credentials and programs that signal demand in this field:

- Toronto Metropolitan University — Professional Master's Diploma in Energy and Innovation
  https://www.torontomu.ca/cue/education/masters-diploma/

- University of Waterloo — Green Energy Graduate Diploma
  https://uwaterloo.ca/mechanical-mechatronics-engineering/waterloo- announces-new-green-energy-graduate-diploma

- McMaster University Power and Energy Engineering Technology diploma
  https://www.eng.mcmaster.ca/sept/degree-options/power-and-energy- engineering-technology/

5 Enrolment Information

- *Please complete Table 1 and provide, in paragraph form, information regarding enrolment projections*
- *Please determine the academic year when the program enrollment will reach a steady-state and add an asterisk (*) in the corresponding box beside the number*
- *This table should reflect normal estimated program length. (Table may be adjusted as necessary.)*

Table 1: Projected Enrollment by Academic and Program Year

	Academic Year					
	2026-2027	2027-2028	2028-2029	2029-2030	2030-2031	2031-2032
Level of Study						
Diploma Year 1	10	10	20*	20	20	20
Total Enrollment	10	10	20	20	20	20

Projected enrollment would initially be around 5-10 students per year. The planned steady-state is 20 students per year. Note these directed offerings may be offered in alternate formats other than the traditional 12-week semester.

6 Admission Requirements

Outline the formal admission requirements as they will appear in the Academic Calendar

Minimum Academic Requirements for Graduate Diploma Programs:

- Hold a four-year honours degree or its equivalent from a recognized institution in the area of graduate study or a closely related subject.
- A minimum B-minus average (GPA: 2.7 on a 4.3 scale).
- Applicants that have a degree in subject areas outside of engineering or those who do not meet the minimum GPA requirements, but have relevant engineering experience will be evaluated on an individual case-by-case basis.

- *Explain how the program's admission requirements are appropriate for the program objectives and program learning outcomes: How will they help to ensure students are successful? How do they align with the learning outcomes of the program?*
- *Explain in detail any additional requirements for admission to the program such as minimum grade point average, special language, portfolio, etc. (and how the program recognizes prior work or learning experience, if applicable)*
- *Indicate the programs from which students may be drawn*

Graduates from any Canadian accredited undergraduate engineering program (or its equivalent) will be eligible to enrol in the GDip, including Automotive Engineering, Civil Engineering, Electrical Engineering, Energy Engineering, Industrial Engineering, Manufacturing Engineering, Mechanical Engineering, Mechatronics Engineering, and Software Engineering.

To provide applicants looking to reskill for the energy sector the potential opportunity to do the GDip in Energy Systems Engineering, applicants from non-engineering programs or those who do not meet the minimum GPA requirements will be considered on a case-by-case basis.

7 Program Requirements, Learning Outcomes, Degree Level Expectations (DLEs), and Program Structure

Participate in program learning outcome (PLO) development sessions and complete the PLO mapping document to describe what the student will know or be able to do by the

end of the program and how that knowledge or skill will be demonstrated; include the mapping document as an appendix; refer to the new PLOs and PLO mapping document to complete the questions in this section.

Please see Appendix A for a list of the Program Learning Outcomes, Degree Level Expectations, Courses, and Assessments.

Discuss how the design, structure, requirements, and delivery of the program are appropriate for the program learning outcomes, program outcomes, and Degree Level Expectations. Guidance on program objectives and program-level learning outcomes, including examples, is available here. Be sure to include the following in your response:

- *The sequencing of required courses or other learning activities*
- *The mode of delivery of the program (is this an online or hybrid program?)*
- *Will the program be offered full-time and/or part-time; what is the program length for both full-time and part-time students; how will the program requirements reasonably be completed within the proposed time?*
- *A clear indication of how faculty scholarship and research is integrated; for researched-focused graduate programs, provide a clear indication of the nature and suitability of the major research requirements for degree completion; for professional graduate programs, how an understanding of research in this area will be reflected in curriculum and/or assessment*
- *How the program will be administered*
- *The unique curriculum or program innovations or creative components in this program*
- *The ways in which the curriculum addresses the current state of the discipline*
- *If the program is to be accredited, include with the above details about the accreditation requirements and add the accreditation tables, if available, as an additional Appendix*

The program takes advantage of Ontario Tech's already extensive array of energy-related courses. This facilitates quick initiation as well as flexibility to develop additional courses as industry interest warrants. Students in the program will complete two core courses that assess energy applications across systems. The broader program is supported through the availability of elective courses in specific energy technologies and applications.

Students complete four (4) graduate-level courses (12 credit hours total) from the lists below, providing both theoretical understanding of overall energy systems and practical training in specific energy applications:

At least two courses from the following list:

- ENGR 5014G - Pollution Prevention and Sustainable Engineering
- ENGR 5100G - Advanced Energy Systems
- ENGR 5101G - Thermal Energy Storage
- ENGR 5102G - Fuel Cells and Hydrogen Systems
- ENGR 5965G - Digital Devices and Techniques for Smart Grid Automation and Protection

- NUCL 5100G - Nuclear Plant Systems and Operation
- NUCL 5300G - Advanced Topics in Radioactive Waste Management
- NUCL 5510G - Nuclear Safety Design and Regulation
- NUCL 5600G - Future Role of Nuclear Energy
- NUCL 6140G - Life Cycle Assessment in Nuclear Applications

Elective courses:

- ENGR 5161G - HVAC and Refrigeration Systems Design and Analysis
- ENGR 5410G - Project Management for Engineers or NUCL 5010G - Project Management for Nuclear Engineers
- ENGR 5415G - Foundations of Engineering Management
- ENGR 5511G - Introduction to Railway Systems
- ENGR 5544G - Railway Systems Operation and Maintenance
- ENGR 5925G - Control and Operation of AC Drives
- ENGR 5930G - Adaptive Control
- ENGR 5940G - Intelligent Control Systems
- ENGR 5945G - Mobile Robotic Systems
- 5005G - Special Topics*
- NUCL 5250G - Power Plant Thermodynamics
- NUCL 5330G - Principles of Nuclear Facility Decommissioning

*Registration in Special Topics course(s) are subject to approval by the Graduate Program Director, must be relevant to the GDip program scope, and must be confirmed as enabling the student to meet the program learning outcomes and degree-level expectations for the graduate diploma.

In addition to the courses above, several courses are under development and would be considered for inclusion as part of the program requirements. Many have already been offered as Special Topics courses. The proposed courses include:

- Smart Energy Systems
- Waste-to-Energy Systems
- Nuclear-Renewable Hybrid Systems
- Micro Energy Grids
- Cyber Security for Energy Systems
- Measuring and Modelling Sustainability
- Integrated Mobility
- Advanced Community Energy Systems
- Small Modular Reactors
- Nuclear Energy in Society
- Life Cycle Assessment in Energy Applications

The program delivery mode will be hybrid. In addition to the traditional 12-week semester delivery, the courses may be delivered in compressed time formats to meet the needs of industry partners.

To facilitate access to all potential students, part-time studies are permitted. In particular, engineers in industry may wish to pursue a graduate diploma program

through part-time studies.

All course deliverables will be designed to ensure that the students are meeting the program learning outcomes and support the achievement of Graduate Degree Level Expectations. Assessments will not only measure content knowledge but also foster advanced competencies expected at the graduate level.

Provide evidence that each graduate student is required to take a minimum of two-thirds of the course requirements from among graduate-level courses

All courses required for the GDip are graduate level.

Describe how the principles of Equity, Diversity, Inclusion, and Decolonization have been considered:

- *Does the program contain concepts, materials, or resources from scholars/professionals who are part of one or more historically marginalized groups?*
- *Are multiple perspectives represented in the program, such as those offered by those who are Indigenous, Black, Persons of Colour, and/or 2SLGBTQIA+?*
- *How has accessibility been considered? More specifically, have the needs of students with disabilities been integrated into the program design (e.g., the ways that students are asked to demonstrate their learning)? Please provide information beyond the services offered by Student Accessibility Services*

  Discuss how the program structure and delivery reflect universal design for teaching and learning and how the potential need to provide mental or physical health accommodations have been considered; describe how the program structure and delivery methods promote student well-being and resiliency and any elements that support a sense of community in the program
- *Will this program provide space to allow for the discussion of other viewpoints outside the "dominant, Western narrative"?*

The Faculty of Engineering and Applied Science (FEAS) is fully committed to Equity, Diversity, and Inclusion (EDI), including in all its courses and all its research activities. The material covered in this program considers the development of energy systems that serve the public, so it is critical that EDI considerations are incorporated into the development of these systems, in particular ensuring these systems are accessible for all users. The courses, where appropriate, will cover these issues to ensure that students understand the importance of designing accessible systems.

As an example of its focus on EDI, FEAS has the Women in Engineering Society with the following goals:

- We foster a welcoming and engaging space for female engineering students to

create a sense of community on and off campus.
- We connect female students to future employers and engineering career opportunities across Canada, and showcase successful female engineering professionals.
- We equip our students with professional skills, connections, and inspiration to prepare them for their professional careers.
- We give back to the community by running outreach events to encourage and inspire young women to pursue an education in engineering.

In addition to the above, FEAS's Engineering Outreach offers programs targeting Indigenous and black students to inspire and encourage them to pursue engineering.

For students who have accommodation needs, existing Student Accessibility Services (SAS) supports will be available to students who require specific accommodations.

Does this Program contain any Indigenous content? ☐ Yes ☒ No ☐ Unsure

For more information on how Indigenous content is defined at Ontario Tech University and how to consult with the Indigenous Education Advisory Circle (IEAC), please refer to the Protocol for Consultation with the Indigenous Education Advisory Circle.

Has the IEAC been contacted ☐ Yes ☒ No If yes, when? N/A

What was the advice you received from the IEAC, and how has it been included in your proposal?

N/A

Did the IEAC ask you to return the proposal to them for review? ☐ Yes ☐ No

If yes, have they completed their review? ☐ Yes ☐ No ☐ N/A

Is there an experiential learning component (e.g. workplace learning, co-op, internship, field placements, service learning, mandatory professional practice) to the program? If yes, please describe this component in 2500 words or less. Include confirmed partners, duration of the experiential learning component(s), and projected number of placements (where applicable) and provide letters of support.

N/A

8 Assessment of Teaching and Learning

Using examples from the PLO mapping document, address the following. Please see Guidance on Assessment of Teaching and Learning and speak with the Teaching and Learning Centre (TLC) for advice on how to satisfy these criteria.

- *Appropriateness of the proposed methods for the assessment of student achievement of the intended program learning outcomes and Degree Level Expectations*
- *Describe plans for documenting and demonstrating:*
  - ➢ *The overall quality of the program*
  - ➢ *Whether the program is achieving in practice its proposed objectives;*
  - ➢ *Whether the students are achieving the program learning outcomes and a level of performance consistent with the Degree Level Expectations; and*
  - ➢ *How the resulting information will used to inform continuous program improvement*

The learning outcomes for the program are achieved through a combination of graduate-level course work, including assignments, exams, projects, and presentations.

Learning activities and materials in graduate courses will be carefully designed to ensure that learners are deliberately exposed to study, the majority of which is at, or informed by, the forefront of engineering theory and practice.

The selection of courses is designed to give students key knowledge in energy systems engineering as well as an opportunity for advanced development of generic skills such as communication and teamwork. In addition, there will be scholarly activities of independent investigation, report writing, and presentations.

Throughout the curriculum, learning activities are planned, and student progress will be monitored to ensure that safety, professional guidelines, and ethical responsibilities relevant to engineering are modelled, developed, and evaluated.

The courses available in the program cover the state-of-the-art in energy applications and are taught by instructors with subject matter expertise. Courses are developed in conjunction with subject matter experts from industry. An Industrial Advisory Committee made up of representatives from the energy sector will help ensure the courses remain relevant and current.

Student feedback surveys will be completed at the end of each course delivery to gather feedback. As well student performance in each course will be monitored yearly. The Graduate Program Director responsible for the program will review both the student feedback surveys and the student performance to ensure that the program is

meeting its goals. In addition, the Industrial Advisory Committee will also provide feedback on the program delivery. Insights from these surveys and reviews will be documented and used to identify specific areas for improvement, inform curriculum adjustments, and guide enhancements to teaching and learning strategies.

Any required changes to curriculum, assessment methods, delivery, or administration are implemented as appropriate and feasible at the discretion of the Faculty Dean. Curricular changes are then submitted and documented through appropriate Faculty and University committees consistent with standard curricular change policies and procedures as identified in the IQAP.

To ensure sustained quality, program effectiveness will be assessed and monitored through the cyclical review process, providing actionable insights for continuous improvement. In addition to the external review every eight years, Ontario Tech's Academic Resource Committee (ARC) requires a brief report at program launch and a full report one-year after the launch of a new program. The one-year report will ask the program to review enrollment data, admission averages, and provide an analysis of successes and challenges encountered in the first year. If there are areas of concern and it is deemed necessary, ARC will make recommendations to enhance program effectiveness and student success and may request a subsequent report. If If required, the subsequent report will address key curricular and student data (e.g., GPA, retention data, etc.) as well as any outstanding recommendations from the one-year report. Pending the ARC's review, further documentation may be required of the program for ongoing monitoring.

9 Calendar Copy and Program Map(s)

- *Provide, as an Appendix using the template provided, a clear and full calendar copy. The template ensures consistency across all programs in the Academic Calendar*
- *Provide, as an Appendix, a full list of all courses included in the program including course numbers, titles, and descriptions. Please indicate clearly whether the courses are new/existing. Include full new course proposals for new courses, the template for which will be provided by CIQE. Include the most recent course descriptions for existing courses. If you are making changes to the existing courses, also include a course change form. In an Appendix referenced in Section 11 below, you will note which faculty members are expected to teach in the program and who is responsible for developing any new courses.*

Please see Appendix B for the Calendar Copy for the program and Appendix C for the List of Program Courses and Descriptions.

10 Consultation

- *Describe the expected impact of the new program on the nature and quality of other programs delivered by the home and collaborating Faculty(ies) and any expected impact on programs offered by other Faculties*
- *Outline the process of consultation with the Deans of Faculties that will be implicated or affected by the creation of the proposed program*
- *Provide letters of support for the program from Deans at Ontario Tech and/or from other institutions/partners*
- *Describe any consultation undertaken with regard to the principles of Equity, Diversity, Inclusion, and Decolonization not covered in Section 7 above*

Consultations were held within the Faculty of Engineering and Applied Science, including discussions with the Graduate Program Directors, department faculty, and the Dean's Office. Input from the School of Graduate and Postdoctoral Studies (SGPS) will ensure alignment with Ontario Tech's graduate credential framework.

Feedback confirmed that the proposed diploma complements existing MASc and MEng offerings without duplication and supports the university's strategic focus on digitalization, advanced manufacturing, and applied research. The program also aligns with ongoing collaborations and industry engagement in automation, robotics, railway engineering, and energy engineering.

Discussions have also been held with industry representatives. Companies such as OPG, Bruce Power, Westinghouse, Atkins-Realis, Alstom, Siemens, and AECOM, as well as agencies such as NWMO, AECL, CNSC, Ministry of Energy, Natural Resources Canada have all expressed interest in supporting current staff to join the program.

11 Resource Requirements

Resource Summary
Provide a brief summary *statement of the funding requirements and the rationale. Please consult with the Provost's Office early regarding any resource implications described in this section.*

As the program is leveraging the undergraduate Energy Systems Engineering program, it is anticipated there will be no major resource requirements. By leveraging existing graduate course offerings, the GDip enhances resource efficiency without diminishing the quality of graduate offerings.

The resource requirements outlined in Section 11 have been reviewed by the Academic Resource Committee (ARC): *December 9, 2025*
(date of review)

11.1 Human Resource Requirements

Faculty – New and Existing Requirements

Complete, as an Appendix, the table detailing the list of faculty committed to the program and provide, in paragraph form below, the following:

- *Clear evidence that faculty have the recent research or professional/clinical expertise needed to sustain the program, promote innovation, and foster an appropriate intellectual climate*
- *Additional information to demonstrate how supervisory loads are distributed in light of qualifications and appointment status, if not clear from the table*
- *Evidence of the participation of a sufficient number and quality of faculty who will actively participate in the delivery of (teach and/or supervise) the program and achieve the goals of the program and foster the appropriate academic environment, contribute substantively to the program, and commit to student mentoring*
- *Describe the role of any sessional/part-time faculty and any adjunct faculty; provide an approximate percentage used in the delivery of the program and the plans to ensure the sustainability of the program and quality of the student experience*
- *Explain the provision of supervision of any experiential learning opportunities; how will supervisory loads be distributed?*

Provide the CVs of all faculty who appear in the table of faculty committed to the program. These CVs should form a separate document with a table of contents and should have all CVs in alphabetical order by surname. CVs should be submitted in a consistent format.

Please see Appendix D Faculty Information for a table detailing the list of faculty committed to the program and Appendix E for Curriculum Vitae.

The program will be delivered by several existing faculty members in the Faculty of Engineering and Applied Science with energy engineering expertise: Jennifer McKellar, Hossam Gaber, Daniel Hoornweg, Akira Tokuhiro, Glenn Harvel, Mark Rosen, Brendan Macdonald, Martin Agelin-Chaab, Sheldon Willimason, Ibrahim Dincer.

There is no supervision of experiential learning opportunities in this program.

Are additional faculty required to be able to offer this program? ☐ Yes ☒ No

Please explain, i.e. Why would new faculty not be required? Would this change over time? What year will the faculty hire be required, and are there additional criteria associated with the hiring requirement (e.g. enrolment levels, program growth, University or Faculty priorities)?

N/A - Since the course delivery will leverage existing graduate course offerings, no additional human resources will be required, unless the number of students enrolled reaches the point where more than one section of a given course needs to be offered. Details and timing of proposed hirings are coordinated and confirmed with the Provost's Office through regular operational conversations.

Additional Academic and Non-Academic Human Resources

Give details regarding the nature and level of TA support required by the program, the level of administrative (i.e. new program director appointment), and academic advising support, etc. If new staff resources are needed, provide further details below.

No TAs will be required unless the enrolment is large enough to warrant it.

Are additional staff required to be able to offer this program? ☐ Yes ☒ No

If yes, please outline what year the staff hire(s) will be required and any additional criteria associated with the hiring requirement (e.g. enrolment levels, program growth, University or Faculty priorities):

N/A

11.2 Learning Resources

Provide an opening statement to describe the resources to sustain the quality of scholarship and research activities of undergraduate and graduate students, enhance the learning and teaching environment, promote student well-being and resiliency in the learning and teaching environment; refer as noted to the two standard Appendices.

The program will leverage existing institutional resources and targeted supports, including access to modern facilities, technology-enabled classrooms, and research infrastructure. Dedicated student services, academic advising, and wellness initiatives will promote student well-being and resiliency, ensuring a supportive and inclusive learning environment.

Please see Appendix E for a University statement concerning Learning Resources.

11.3 Information Technology

Provide a summary of evidence that there are adequate information technology resources to sustain the quality of scholarship and research activities of undergraduate and graduate students; address any unique requirements including renovations to existing space, Faculty-specific space/equipment, etc.; are there additional technology requirements specific to being able to successfully launch this program? Refer as noted to the standard Appendix.

The institution provides robust information technology resources to support high-quality scholarship and research activities for both undergraduate and graduate students. These include access to modern computing facilities, high-speed networks, secure data storage, and discipline-specific software to enhance teaching and learning. Existing spaces are equipped with technology-enabled classrooms and research infrastructure ensuring the program can be successfully implemented and sustained.

Please see Appendix F for a University statement concerning information technology services.

Supporting information for online and hybrid programs

Where applicable, please provide the following details for online and hybrid programs:

- *Describe the adequacy of the technological platform to be used for online delivery*
- *Describe how the quality of education will be maintained*
- *Describe how the program objectives will be met*
- *Describe how the program learning outcomes will be met*
- *Describe the support services and training for teaching staff that will be made available*
- *Describe the sufficiency and type of supports that will be available to students*
- *How has accessibility been considered?*
- *What strategies have been considered to accommodate students with disabilities?*
- *Have the principles of Universal Design been considered?*
- *Will course content be offered in both written and audible forms (e.g., closed captioning, transcriptions)?*
- *Is course content designed logically and is it easy to follow with limited instruction?*
- *Are assignment expectations clear (i.e., a rubric)?*
- *Have the needs of students with limited or unreliable access to wi-fi been considered (e.g., breaking down pre-recorded lectures into maximum 10-minute videos)?*

The program will leverage existing University IT infrastructure. Ontario Tech is a laptop university where students bring their own laptop devices and are provided access to a software portal where they can download any necessary software required

for their courses, including a variety of engineering specific packages such as SolidWorks, NX, Multisim, MATLAB, Adams, and Nastran.

The hybrid delivery of the courses will make use of Ontario Tech's flexible hybrid classrooms that allow for synchronous delivery with active participation from students both in room and online and the ability for all students to see all other students.

11.4 Financial Support for Graduate Students

Provide evidence that financial assistance for students, including TA-ships where applicable, will be sufficient to ensure adequate quality and numbers of students.

No financial assistance will be provided as this is a professional program.

11.5 Space and Infrastructure Requirements

- *Provide evidence that there are adequate resources to sustain the quality of scholarship and research activities of undergraduate and graduate students, including information about laboratory and research space access, where applicable, and office space; address any unique requirements*
- *Highlight the change in the number of faculty, students, administrative staff, etc. as well as information on changes in equipment and activities; renovation of existing space; or whether the current space allocation will accommodate the new program*
- *Are there additional space requirements specific to being able to successfully launch this program?*

The hybrid delivery of the courses and the leveraging with other graduate courses will have minimal impact on classroom requirements.

No additional space requirements are required.

11.6 Other Resource Implications

- *Note here if this new program may impact enrolment agreements with other institutions/external partners that exist with the Faculty/Provost's office. Indicate if the new program will require changes to any existing agreements with other institutions or will require the creation of a new agreement. Please consult with CIQE (ciqe@ontariotechu.ca) regarding any implications to existing or new agreements*
- *Are there inter-Faculty teaching implications?*
- *If this is a new joint program with another institution, indicate how the program will be administered and how program reviews will be conducted (refer to the*

Ontario Tech Institutional Quality Assurance Process Policy for more information)

The program does not impact any existing agreements Ontario Tech has with institutional and external partners. In addition, there are no inter-Faculty implications.

12 Closing Statements Regarding Program Quality

- *Please summarize the appropriateness of the faculty's collective expertise and how it contributes substantively to the proposed program; use indicators to provide evidence of the quality of the faculty (e.g., qualifications, funding, honours, awards, research, innovation, and scholarly record).*
- *Please summarize how the program and faculty will ensure the intellectual quality of the student experience.*

The GDip in Energy Systems Engineering was designed in consultation with experts from the energy sector to meet the demands of the energy transition in Canada and internationally. The Faculty has several professors with energy sector expertise as well as access to a slate of industry experts from our partner companies who can support courses as needed. The program has been designed to meet the needs of the energy sector. The Faculty has a history of quality program delivery that will serve as a model for the delivery of this new program.

Appendices

Please include at minimum the below. Additional Appendices may be added, as appropriate. Appendices should ultimately be listed below, attached as separate documents, and clearly labelled (A, B, C, etc.) in the order in which they are first mentioned in the document.

Appendix A: Program Learning Outcome Alignment Map to DLEs, Courses, and Assessments
Appendix B: Calendar Copy
Appendix C: List of Program Courses and Descriptions for Existing Courses
Appendix D: Faculty Information
Appendix E: Learning Resources
Appendix F: Information Technology Resources

Items to be separate documents sent to CIQE:
New Program Funding and Tuition form (for CIQE use only)
Budget Spreadsheet (for ARC use only)
Curriculum Vitae (for Quality Council use only)

Graduate Diploma – Energy Systems Engineering

PLO #	Program Learning Outcomes
PLO 1	Explain advanced concepts, principles, and theories in energy systems engineering.
PLO 2	Solve engineering problems related to energy systems using engineering knowledge and methods.
PLO 3	Recognize and be guided by social, professional, and ethical expectations and concerns in engineering.
PLO 4	Explain the importance of continuing professional education and the strategies necessary for lifelong learning in engineering.
PLO 5	Communicate engineering concepts, principles, and results effectively using written and verbal formats.
PLO 6	Evaluate advanced information using knowledge of energy systems engineering and apply it in engineering practice.

Graduate Diploma – Energy Systems Engineering

Graduate Degree Level Expectations		Depth and Breadth of Knowledge				Research and Scholarship				Level of Application of Knowledge			Professional Capacity/ Autonomy			Level of Communucation Skills			Awareness of Knowledge Limits		
Program Learning Outcomes		PLO1				PLO2				PLO2			PLO3	PLO4		PLO5			PLO6		
Course No.	Course Title																				
ENGR 5014G	Pollution Prevention and Sustainable Engineering	1, 3				1, 3				1, 3, 5			1, 2, 4	4, 3		2, 4			1, 3, 5		
ENGR 5005G	Special Topics	1, 5				1, 5				1, 5			1, 5, 6	2, 5, 6		2, 6			2, 5		
ENGR 5100G	Advanced Energy Systems	3, 5				1, 3				1, 3			1, 2, 4	2, 4		2, 4			1, 3		
ENGR 5101G	Thermal Energy Storage	1, 3				1, 3				1, 3			1, 2, 4	2, 4		2, 4			1, 3		
ENGR 5102G	Fuel Cells and Hydrogen Systems	1, 3				1, 3, 5				1, 3, 5			1, 2, 4	4, 5		2, 4			1, 3		
ENGR 5161G	HVAC and Refrigeration Systems Design and Analysis	1, 3				1, 3				1, 3			1, 2, 4	4		2, 4			1, 3		
ENGR 5410G	Project Management for Engineers	1, 3				1, 3				1, 3			1, 2, 4	4		2, 4			1, 3		
ENGR 5415G	Foundations of Engineering Management	1, 3				1, 3				1, 3			1, 2, 4	4		2, 4			1, 3		
ENGR 5511G	Introduction to Railway Systems	1, 3				1, 3				1, 3			1, 2, 4	4		2, 4			1, 3		
ENGR 5544G	Railway Systems Operation and Maintenance	1, 3				1, 3				1, 3			1, 2, 4	4, 6		2, 4			1, 3		
ENGR 5925G	Control and Operation of AC Drives	1, 3				1, 3				1, 3			1, 2, 4	4		2, 4			1, 3		
ENGR 5930G	Adaptive Control	1, 3				1, 3				1, 3			1, 2, 4	4		2, 4			1, 3		
ENGR 5940G	Intelligent Control Systems	1, 3				1, 3				1, 3			1, 2, 4	4		2, 4			1, 3		
ENGR 5945G	Mobile Robotic Systems	1, 3				1, 3				1, 3			1, 2, 4	4		2, 4			1, 3		
ENGR 5965G	Digital Devices and Techniques for Smart Grid Automation and Protection	1, 3				1, 3				1, 3			1, 2, 4	4		2, 4			1, 3		
NUCL 5005G	Special Topics	1, 3				1, 3				1, 3			1, 2, 4	4		2, 4			1, 3		
NUCL 5010G	Project Management for Nuclear Engineers	1, 3				1, 3				1, 3			1, 2, 4	4		2, 4			1, 3		
NUCL 5100G	Nuclear Plant Systems and Operation	1, 3				1, 3				1, 3			1, 2, 4	4		2, 4			1, 3		
NUCL 5300G	Advanced Topics in Radioactive Waste Management	1, 3				1, 3				1, 3			1, 2, 4	4		2, 4			1, 3		
NUCL 5330G	Principles of Nuclear Facility Decommissioning	1, 3				1, 3				1, 3			1, 2, 4	4, 6		2, 4			1, 3		
NUCL 5510G	Nuclear Safety Design and Regulation	1, 3				1, 3				1, 3			1, 2, 4	4		2, 4			1, 3		
NUCL 5600G	Future Role of Nuclear Energy	1, 3				1, 3, 5				1,3,5			1, 2, 4	4, 6		2, 4			1,3,5		
NUCL 6140G	Life Cycle Assessment in Nuclear Applications	1, 3				1, 3				1, 3			1, 2, 4	4		2, 4			1, 3		

Degee of Implementation:
Introduced
Reinforced
Mastered

Assessment Legend:			
1	Assignments	5	Projects
2	Presentation	6	Communincation
3	Exam	7	
4	Professionalism	8	

Energy Systems Engineering, Graduate Diploma

General Information

The Graduate Diploma (GDip) in Energy Systems Engineering is designed to prepare graduates to understand, analyze, and lead innovation in modern energy systems. The program provides a comprehensive foundation in energy systems, with an emphasis on integrating system components, conservation strategies, and digital technologies – such as automation, robotics, data analytics, and smart design – to enhance productivity, sustainability, and competitiveness.

Intended for both recent graduates and industry professionals holding an undergraduate degree in engineering or a related field, the program equips students with the foundational knowledge required to enter or advance within this rapidly evolving sector. Students complete two core courses that provide a thorough grounding in the key components of energy systems.

A range of elective courses allows students to tailor their studies to specific interests and career goals, with topics including energy storage, heating, ventilation and air conditioning (HVAC), and nuclear facility decommissioning.

Overall, the program prepares graduates to address the growing demand for engineers capable of contributing to the accelerating global energy transition.

Admission Requirements

In addition to the general admission requirements for graduate studies, applicants must meet the following program-specific requirements:

Minimum Academic Requirements for Graduate Diploma Programs:

- Hold a four-year honours degree or its equivalent from a recognized institution in the area of engineering or a closely related subject.
- A minimum B-minus average (GPA: 2.7 on a 4.3 scale).
- Applicants that have a degree in subject areas outside of engineering or those who do not meet the minimum GPA requirements, but have relevant engineering experience will be evaluated on an individual case-by-case basis.

Graduates from any Canadian accredited undergraduate engineering program (or its equivalent) will be eligible to enrol in the GDip, including: Automotive Engineering, Civil Engineering, Electrical Engineering, Energy Engineering, Industrial Engineering, Manufacturing Engineering, Mechanical Engineering, Mechatronics Engineering, and Software Engineering.

Note, the consideration of applicants from non-engineering programs or those who do not meet the minimum GPA requirements is to provide applicants looking to re-skill for the nuclear sector the potential opportunity to do the GDip in Energy Systems Engineering.

Part-time studies

To facilitate access to all potential students, part-time studies are permitted. In particular, engineers in industry may wish to pursue a graduate diploma program through part-time studies.

Graduate diploma requirements

For the graduate diploma, students must complete four courses for a total of 12 credits from the below list. At least two of the courses must be from the list of core courses.

Note: Graduate diploma students are not permitted to take courses outside of their home program course listings for program credit. In addition, they may not take any senior fourth-year undergraduate courses from the Faculty of Engineering and Applied Science in lieu of a graduate course.

Course listings

Core courses:

- ENGR 5014G - Pollution Prevention and Sustainable Engineering
- ENGR 5100G - Advanced Energy Systems
- ENGR 5101G - Thermal Energy Storage
- ENGR 5102G - Fuel Cells and Hydrogen Systems
- ENGR 5965G - Digital Devices and Techniques for Smart Grid Automation and Protection
- NUCL 5100G - Nuclear Plant Systems and Operation
- NUCL 5300G - Advanced Topics in Radioactive Waste Management
- NUCL 5510G - Nuclear Safety Design and Regulation
- NUCL 5600G - Future Role of Nuclear Energy
- NUCL 6140G - Life Cycle Assessment in Nuclear Applications

Elective courses:

- ENGR 5005G - Special Topics*****
- ENGR 5161G - HVAC and Refrigeration Systems Design and Analysis
- ENGR 5410G - Project Management for Engineers or NUCL 5010G - Project Management for Nuclear Engineers
- ENGR 5415G - Foundations of Engineering Management

- ENGR 5925G - Control and Operation of AC Drives
- ENGR 5930G - Adaptive Control
- ENGR 5940G - Intelligent Control Systems
- ENGR 5945G - Mobile Robotic Systems
- NUCL 5250G - Power Plant Thermodynamics
- NUCL 5330G - Principles of Nuclear Facility Decommissioning
- ENGR 5511G - Introduction to Railway Systems
- ENGR 5544G - Railway Systems Operation and Maintenance

*****upon approval by Graduate Program Director and relevant to the scope.

Program learning outcomes

The following outcomes outline the knowledge and skills students will have achieved upon completion of the program.

Program Learning Outcomes - Energy Systems Engineering, Graduate Diploma

Appendix C - List of Program Courses and Course Descriptions

List of Program Courses

The program consists of four graduate-level courses (12 credits total), selected from the following:

Approved Program Courses		
Course Code	**Course Name**	
ENGR 5014G	Pollution Prevention and Sustainable Engineering	Existing Course - course description enclosed
ENGR 5100G	Advanced Energy Systems	Existing Course - course description enclosed
ENGR 5101G	Thermal Energy Storage	Existing Course - course description enclosed
ENGR 5102G	Fuel Cells and Hydrogen Systems	Existing Course - course description enclosed
ENGR 5965G	Digital Devices and Techniques for Smart Grid Automation and Protection	Existing Course - course description enclosed
NUCL 5100G	Nuclear Plant Systems and Operation	Existing Course - course description enclosed
NUCL 5300G	Advanced Topics in Radioactive Waste Management	Existing Course - course description enclosed
NUCL 5510G	Nuclear Safety Design and Regulation	Existing Course - course description enclosed
NUCL 5600G	Future Role of Nuclear Energy	Existing Course - course description enclosed
NUCL 6140G	Life Cycle Assessment in Nuclear Applications	Existing Course - course description enclosed
Elective Courses:		
ENGR 5161G	HVAC and Refrigeration Systems Design and Analysis	Existing Course - course description enclosed
ENGR 5410G	Project Management for Engineers	Existing Course - course description enclosed
ENGR 5415G	Foundations of Engineering Management	Existing Course - course description enclosed
ENGR 5511G	Introduction to Railway Systems	Existing Course - course description enclosed
ENGR 5544G	Railway Systems Operation and Maintenance	Existing Course - course description enclosed

ENGR 5925G	Control and Operation of AC Drives	Existing Course - course description enclosed
ENGR 5930G	Adaptive Control	Existing Course - course description enclosed
ENGR 5940G	Intelligent Control Systems	Existing Course - course description enclosed
ENGR 5945G	Mobile Robotic Systems	Existing Course - course description enclosed
ENGR 5005G	Special Topics	Existing Course - course description enclosed
NUCL 5010G	Project Management for Nuclear Engineers	Existing Course - course description enclosed
NUCL 5250G	Power Plant Thermodynamics	Existing Course - course description enclosed
NUCL 5330G	Principles of Nuclear Facility Decommissioning	Existing Course - course description enclosed

ENGR 5014G - Pollution Prevention and Sustainable Engineering
Industry-environment interactions; pollution prevention; sustainability and sustainable development; sustainable engineering; industrial ecology; environmental impacts and concerns; material and energy budgets, life-cycle assessment, reduction of industrial process wastes (solid, liquid, gaseous); design for environment; design for energy use and efficiency; energy sustainability; industrial applications.

ENGR 5100G - Advanced Energy Systems
Advanced power and refrigeration cycles. Advanced gas turbine systems. Combustion systems and applications. Energy storage. Nuclear reactor technology. Fuel cells. Solar power. Wind power. Hydro power. Co- and tri-generation. Geothermal district heating systems. Energy and exergy analysis of advanced energy systems.

ENGR 5101G - Thermal Energy Storage
General introductory aspects for thermal engineering including energy storage systems, thermal energy storage methods, thermal energy storage and environmental impact, energy storage and energy savings, solar energy and thermal energy storage, heat transfer and stratification in sensible heat storage systems, latent heat storage systems, heat storage with phase change, thermodynamic optimization of thermal energy storage systems, energy and exergy analyses of thermal energy storage systems, and thermal energy storage case studies.

ENGR 5102G - Fuel Cells and Hydrogen Systems
Introduction to hydrogen and hydrogen fuel cells. Efficiency and open circuit voltage. Operational fuel cell voltages. Proton exchange membrane fuel cells. Alkaline electrolyte fuel cells. Direct methanol fuel cells. Medium and high-temperature fuel cells. Fuelling fuel cells. Components of fuel cell power systems. Delivering fuel cell power. Analysis of fuel cell systems. Fuel cell calculations. Tests.

ENGR 5965G - Digital Devices and Techniques for Smart Grid Automation and Protection
This course explores digital devices and technologies essential for smart grids, with a focus on both hardware and software aspects of protective relays and automation systems. Topics include digital algorithms for phasor estimation and the protection of critical components such as lines, transformers, generators, and motors. Advanced concepts, including synchronized phasor measurements, adaptive

relaying, relay testing, and integrated protection and control systems, will be examined alongside associated communication challenges. The course also introduces IEC 61850, the latest standard for substation protection and automation.

NUCL 5100G - Nuclear Plant Systems and Operation
A combination of lectures and self-paced interactive CD are used to present the key design and operating features of a CANDU generating unit, including the principles of overall unit operation and control; the functions, equipment and operation of the main process systems; how each major system is controlled; and how reactor safety and the protection of the public is achieved. Students gain familiarity with the conduct of normal and abnormal operations on a simulated CANDU generating unit, including power manoeuvres; poison override operations; recoveries from reactor trips; recoveries from turbine trips; and responses to reactor, heat transport, steam and feed-water system malfunctions.

NUCL 5300G - Advanced Topics in Radioactive Waste Management
This course examines the various international approaches used for the development of publicly acceptable radioactive waste disposal facilities. Particular emphasis is placed on the technical aspects of geologic disposal systems, used/recycled fuel disposal and the assessment of radioisotope release. The influence of public acceptance on the selection and implementation of technical solutions is also considered.

NUCL 5510G - Nuclear Safety Design and Regulation
This course describes the regulatory requirements and the principles guiding the protection of workers, the general public and the plant from potential harm as a result of nuclear facility operations. Topics include: worker and public safety design requirements; nuclear codes and standards; sources of radioactive release; advanced defense in depth concepts; principles of control, cool, contain and monitor; design for accident prevention, mitigation and accommodation; concepts of separation, independence, redundancy; common mode events and inherent safety features; safety and safety-related system design; safety culture and management; design basis and beyond design basis accidents; human factors; extreme events and emerging issues.

NUCL 5600G - Future Role of Nuclear Energy
The course will provide students with a thorough understanding of the nuclear (power) industry. What are the main global trends in the industry, why these are manifesting now and what is likely to transpire in the next 35 years. This includes an understanding of nuclear technologies across the world and likely advances. In addition to technology, industry assessment includes: social licence, communications, risk management, finance, waste management, geopolitical trends, local political imperatives and the role of nuclear energy in the broader mix of energy supply (mostly electricity generation). Students will be able to cogently (and respectfully) argue both sides of the debate on the future role of nuclear power, especially as it relates to low carbon energy supply. Using Ontario as an example, the nuclear industry and its likely future role will be evaluated in several other jurisdictions, e.g., India and China.

NUCL 6140G - Life Cycle Assessment in Nuclear Applications
Life cycle assessment (LCA) can be used to investigate systems-level environmental impacts of using nuclear energy. For nuclear-powered electricity generation this includes examining life cycle stages from fuel mining to waste management, as well as plant construction and decommissioning. Application of LCA to subsets of this life cycle, as well as to other nuclear applications, will also be discussed. This course aims to instill an appreciation for the importance of LCA; explain how LCAs are conducted, with reference to the ISO standards; and, describe how and why this analytical approach may be applied to

nuclear energy systems.

ENGR 5161G - HVAC and Refrigeration Systems Design and Analysis
Basic concepts. Elements of heat transfer for buildings. Thermodynamic processes in buildings. Energy use and environmental impact. Human thermal comfort and indoor air quality. Fluid mechanics in building systems. Solar radiation. Heating and cooling loads. Annual energy consumption. Heat transfer equipment. Cooling equipment. Thermal energy storage. Software use and tests.

ENGR 5410G - Project Management for Engineers
This course prepares engineers for the effective application of project management to their work. It covers the following topics: project integration, project scope, cost management, time management, engineering quality, human resources, project communications, risk management and procurement management. The course uses the Project Management Institute's (PMI) Project Management Body of Knowledge (PMBOK) with relevant examples from nuclear, software and other fields of engineering. Special emphasis is placed on Risk Management, particularly in the area of safety-critical engineering projects. The student will be well-positioned both to apply the knowledge in their area of engineering and to write the PMI's Project Management Professional (PMP) examination.

ENGR 5415G - Foundations of Engineering Management
Fundamentals of engineering management. Managerial accounting: cost-volume-profit analysis, costing systems and standard costs, activity-based costing, relevant costing. Organizational behaviour: motivation, stress management, effective leadership, communication, work teams. Quantitative decision making in engineering: scoring models, AHP, decision trees, mini-max regret and other strategies.

ENGR 5511G - Railway Systems Foundations
This course covers railway systems including the environmental needs and contributions of railway systems in a global context. The course will cover the history of railways, the requirements of regulatory authorities and the factors considered in designing railway systems, including the main economic parameters of railway systems to be considered for any project. Engineering methodologies of railway systems, including design of metro, tram, and mainline/commuter systems will be covered along with the principles for managing the operational capability of railway systems.

ENGR 5544G - Operation and Maintenance of Railway Systems
This course covers the operation and maintenance of both urban and main line railway systems. Topics include: scheduling; Operations Control Centre (OCC); maintenance options, tools, procedures and training; emergency measures; and testing and commissioning.

ENGR 5925G - Control and Operation of AC Drives
The main objective of this course is to provide students with a thorough understanding of the design, modeling and control of electric drives. The course starts with a thorough review of the fundamentals of power electronics, machines and control theory in the world of drives as applies to research and development. AC machines are introduced using the concept of rotating magnetic field and comparisons to the DC machine. Details of operation, construction, design and control are then presented for

induction machines, permanent magnet synchronous machines and switched-reluctance machines (SRM). Rail, electric and hybrid vehicle application examples are emphasized.

ENGR 5930G - Adaptive Control
This is a course on the general principles of adaptive control and learning. This course will cover real-time parameter estimation, deterministic self-turning regulators, stochastic and predictive self-tuning regulators, model reference adaptive systems, gain-scheduling, properties of adaptive systems, robust adaptive control schemes, adaptive control of nonlinear systems, and practical issues and implementation.

ENGR 5940G - Intelligent Control Systems
With the advance of increasingly faster computing hardware and cheaper memory chips, computational intelligence, also known as a part of soft computation, is becoming more and more important in control engineering. This course will equip students with the essential knowledge and useful resources to solve some of the systems control problems not easily solved using conventional control methods. This course will cover fundamentals of fuzzy set theory, structures of fuzzy logic controllers, structures of neural networks, learning algorithms and genetic algorithms.

ENGR 5945G - Mobile Robotic Systems
This course covers kinematics models and motion control for mobile robots; navigation, including path planning, obstacle avoidance and techniques for decomposition, localization using odometry, map representation, map building and introduction to probabilistic map-based localization; Kalman filter localization and other localization systems; computer vision, including imaging and image representation, feature extraction, pattern recognition, motion from 2D image sequences, image segmentation, sensing and object pose computation, and virtual reality.

ENGR 5005G - Special Topics
Presents material in an emerging field or one not covered in regular offerings. This course may be taken more than once, provided the subject matter is substantially different.
NUCL 5250G - Power Plant Thermodynamics
This course presents the theoretical and practical analysis of the following, with the particular reference to modern advanced nuclear-power reactors / plants and Generation-IV concepts of nuclear-power reactors / plants. Thermodynamic Cycles include: (1) Modern advanced combined cycles and subcritical- and supercritical-pressure Rankine cycles of various options used in thermal-power industry; (2) Modern subcritical-pressure Rankine cycles of various options used in nuclear-power industry; and (3) Future advanced combined cycles and subcritical- and supercritical-pressure Rankine cycles of various options proposed to be used in the nearest future with the deployment of Generation-IV nuclear-power reactors. Description of power cycles includes: Their layouts, major equipment, T-s diagrams, cycle efficiency; turbine configurations, etc.

NUCL 5010G - Project Management for Nuclear Engineers
This course in project management prepares nuclear engineers and scientists in the application of this discipline in their work. It is an intensive investigation into the major principles of project management slanted towards, but not exclusively about, the management of nuclear engineering projects. The course uses the Project Management Institute's (PMI) Project Management Body of Knowledge (PMBOK) as a skeleton and expands that coverage with relevant examples from nuclear, software and general engineering. Special emphasis is placed on risk management, particularly in the area of safety-critical projects. Graduates will be well positioned both to apply the knowledge in their area of engineering and

to sit the PMI's Project Management Professional (PMP) examination. The course is taught using many case studies from industry and engineering.

NUCL 5330G - Principles of Nuclear Facility Decommissioning
This course will cover an introduction to nuclear decommissioning technology and practice, covering the transition from an operating state to safe storage surveillance, decommissioning, and return to end state. The regulations, codes and standard, current practices and methods will be covered. Practices and methods for planning, cost estimating and preparing for decommissioning including historical data gathering and site characterization, are included. Decontamination technologies, decontamination factors and generation of secondary contamination will be examined. Dismantling technologies for components and systems and their relationship to waste transport requirements and waste site acceptance criteria will be studied. End states and site release criteria will be discussed.

Appendix D – Faculty Information

Please include here only those currently at the institution and affiliated with the program. Examples in purple to be removed.
Where available, link each faculty name to their Research or Profile page on the website.

Name and Faculty Status/Rank	Terminal Degree	Home Faculty/Unit	Areas of Expertise	Supervisory Privileges and Role in New Program (Note if faculty will be teaching and/or supervising in the program; indicate primary supervisor by asterisks)	Total Graduate Teaching (including New Program) (Note in bold type if faculty is a core course developer for the program)
Akira Tokuhiro	PhD	FEAS	• Education/Learning • Energy • Nuclear • Public Safety • Plant Engineering and Operations • Program Development • Research • Safety	Graduate Faculty* Teaching core courses	3-4 courses (undergraduate/graduate level)
Brian Ikeda	PhD	FEAS	• Corrosion of materials in molten fluoride salts • Corrosion of nuclear waste container materials • Electrochemical and physical degradation of fluorine anodes • Localized corrosion of metals at elevated temperatures • Stress-assisted corrosion cracking of metals • Long-term performance assessment of materials • Radioactive waste management	Graduate Faculty* Teaching core courses	3-4 courses (undergraduate/graduate level)

Dan Hoornweg	PhD	FEAS	• Climate change • Energy systems • Greenhouse gas emissions • Hydrogen • Material flows in cities (e.g. energy and solid waste) • Sustainability • Sustainable development	Graduate Faculty* Teaching core courses	3-4 courses (undergraduate/graduate level)
Dima Jawad	PhD	FEAS	• Recent trends and Innovative Tools in Project Management • Economic Evaluation and Optimization Under Uncertainty • Risk Management • Sustainability and Resiliency of Infrastructure • Infrastructure and Transportation Systems Management	Graduate Faculty* Teaching core courses	3-4 courses (undergraduate/graduate level)
Glenn Harvel	PhD	FEAS	• Diagnostic techniques • Electrohydrodynamic and plasma technology for particle capture • Nuclear decommissioning • Nuclear plant design • Plant operations and maintenance optimization • Small modular reactors	Graduate Faculty* Teaching core courses	3-4 courses (undergraduate/graduate level)
Ibrahim Dincer	PhD	FEAS	• Drying • Energy and exergy analyses • Energy conversion and management • Heat and mass transfer • Hydrogen and fuel cell systems • Refrigeration • Renewable energies	Graduate Faculty* Teaching core courses	3-4 courses (undergraduate/graduate level)

			• Thermal energy storage • Thermodynamics		
Jennifer McKellar	PhD	FEAS	• Life cycle assessment • Life cycle costing • Real options analysis • Expert elicitation	Graduate Faculty* Teaching core courses	3-4 courses (undergraduate/graduate level)
Jing Ren	PhD	FEAS	• Haptics and virtual reality • robotics and control • image processing • soft computing	Graduate Faculty* Teaching core courses	3-4 courses (undergraduate/graduate level)
Marc Rosen	PhD	FEAS	• Polygeneration (cogeneration, trigeneration, etc.) • District energy • Efficiency improvement • Electricity generation • Energy Environmental impact assessment and reduction • Energy analysis • Geothermal energy • Heat transfer • Hydrogen energy and fuel cells • Integrated energy systems • Modelling and simulation of energy systems • Renewable energy • Solar energy • Sustainable energy and sustainability • Wind energy • Thermal energy storage • Thermodynamics	Graduate Faculty* Teaching core courses	3-4 courses (undergraduate/graduate level)
Masoud Makrehchi	PhD	FEAS	• Natural Language Processing • Artificial Intelligence • Machine Learning • Text and Data Mining • Social Computing	Graduate Faculty* Teaching core courses	3-4 courses (undergraduate/graduate level)

			• Mining Social Networks and Complex Systems • Network Science • Moral AI		
Mohamed Youssef	PhD	FEAS	• Propulsion Systems for the Automotive and Innovative Technologies like Hyperloop; • Power Train for New Drives like Water Pumps; • Railway Electromagnetic Compatibility (EMC); • Railways Traction Substation Design Planning, and Commissioning; • Power Electronics Applications for the Information Technology (IoT); • Power Electronics Applications in the Innovative Renewable Energy Resources; • Power Supply Design for the Oil/Gas; • Power Systems Operation and Stability.	Graduate Faculty* Teaching core courses	3-4 courses (undergraduate/graduate level)
Scott Nokleby	PhD	FEAS	• Robotics • Mechatronics • Mechanisms • Automation • Advanced Kinematics of Robots and Mechanisms • Redundant Manipulator Systems • Mobile-Manipulator Systems • Mechanism and Robot Design • Optimal Design	Graduate Faculty* Teaching core courses	3-4 courses (undergraduate/graduate level)

Existing Non-Financial Student Support Services

School of Graduate and Post-Doctoral Studies

Quality graduate and postdoctoral education combines teaching, research, professional development, disciplinary community involvement and personal growth. It is by nature a shared responsibility between students, faculty members, the programs and a large number of support units, with overarching administration being provided by the School of Graduate and Postdoctoral Studies.

The School of Graduate and Postdoctoral Studies (SGPS) furthers the scholarly mission of the university by providing academic and administrative support to the university's postgraduate educational, research, innovation and international activities. Our responsibilities include graduate program development, graduate enrolment management, oversight of academic and quality standards, and the implementation of policies and practices that enhance graduate/postdoctoral scholarly success, career readiness and personal growth. SGPS supports prospective, new and current graduate students through many administrative services including, but not limited to, recruitment, admission, registration, funding and scholarships, orientation, professional development workshops and events, and processing of final theses, projects and papers. SGPS is a single-point-of-contact, multifunctional administrative unit tailored to the complete "life-cycle" of graduate students, providing coordinated support to students and all other stakeholders.

Student Life

Ontario Tech University, as a relatively small campus community, has a centralized delivery model for many student supports. All undergraduate students have access to an extensive support system that ensures a quality student experience. Each Faculty may provide additional, Faculty- or program-specific supports. In addition to the outlined services below, students may also take advantage of the Campus Bookstore, Housing and Living Resources as well as the Ontario Tech Student Union. Further information can be found at: http://studentlife.ontariotechu.ca/.

Student Learning Centre

Ontario Tech University fosters a high level of academic excellence by working with students, undergraduate and graduate, to achieve educational success. Faculty specific academic resources are available online and include tip sheets and videos. Academic specialists offer one-on-one support services in mathematics, writing, study skills, ESL and physics. With the additional support of peer tutors and workshops, the Student Learning Centre can also accommodate the needs of a specific course or program.

Student Accessibility Services

Ontario Tech University ensures that students with disabilities have equal opportunities for academic success. Student Accessibility Services operates under the

Ontario Human Rights Code and the Accessibility for Ontarians with Disabilities Act. Services and accommodation support are provided for students with documented disabilities and include:

- Adaptive technology training
- Alternate format course material
- Learning skills support
- Testing support
- Transition support for incoming students

Student Accessibility Services also provides inclusive peer spaces, support groups, and skills workshops for students.

Career Readiness

Ontario Tech University offers comprehensive career service assistance, co-op and internship support and a variety of valuable resources to help students along their career paths, including:

- Assistance with creating effective job-search documents
- Career counselling
- Co-op and internships
- Interview preparation
- Job market information
- Job search strategies

The Career Centre hosts a variety of events during the academic year including employer information and networking sessions, job fairs and interviews conducted by leading employers.

Student Engagement, Equity and Inclusion, and ***Indigenous Education and Cultural Services***

The university supports students' successful transition and provides opportunities to develop leadership and professional skills throughout their university career. Services provided include:

- Equity and inclusivity programming and support groups
- Indigenous Education and Cultural Services provides space and supports for students to connect with Indigenous culture and resources
- Opportunities to grow and develop leadership skills through the Ambassador and Peer Mentorship program
- Orientation and events through first year
- Peer mentoring
- Services and supports for international and exchange students

- Specialized programming for first-generation, graduate, Indigenous, international, mature, online, transfer and diploma-to-degree pathways students

Student Mental Health Services

Student Mental Health Services helps students learn how to better manage the pressures of student life. Students can:

- Access short term counselling and therapy services
- Access tools and resources online to learn about mental health and how to maintain good health and wellness
- Attend drop-in sessions
- Participate in events, activities or support groups that promote positive health and well-being
- Work with a mental health professional to address concerns

Students in distress will also be provided with support and counselling as needed. There is no cost to students and services are confidential. For those who need long-term counselling support or specialized mental health services, Ontario Tech University will provide referrals to assist the student in accessing resources in the local community or in the student's home community.

Athletics and Recreation Facilities

Ontario Tech University offers a number of recreation facilities and fitness opportunities to meet all lifestyles and needs. On-campus facilities include the state-of-the-art FLEX Fitness Centre which overlooks Oshawa Creek, five gymnasiums, a 200-metre indoor track, two aerobic/dance studios, the Campus Ice Centre, Campus Fieldhouse, a soccer pitch, a fastball diamond, squash courts and an indoor golf training centre. Students are able to participate in varsity and intramural sports as well as group fitness classes and personal training sessions.

Campus Health Centre

The Campus Health Centre provides assistance in numerous confidential health-care options including:

- A medical clinic with daily access to physician and nursing staff
- Treatment of disease, illness, and injury
- Allergy injections, immunizations, and influenza injections
- Complementary Health Services featuring acupuncture, chiropractic, custom orthotics, massage therapy, nutritional counselling, and physical therapy
- An on-site laboratory (blood work, STI testing, throat swabs, etc.)
- Gynaecological health-care and prescriptions

Student Awards and Financial Aid

Student Awards and Financial Aid (SAFA) is dedicated to helping students understand the variety of options available to finance their education. Budgeting and financial planning are essential to their success and SAFA is on hand to help create the right financial plan. Financial assistance can be in the form of bursaries, employment (both on-campus and off), parental resources, scholarships, student lines of credit and the Ontario Student Assistance Program (OSAP).

Teaching & Learning Centre

The mission of the Teaching and Learning Centre (TLC) at Ontario Tech University is to empower faculty to reach their potential as educators and to create a culture where effective teaching is valued. We champion the scholarship of teaching and implementation of pedagogy. We create valuable teaching and learning professional development experiences. We move Ontario Tech University towards being a leader in teaching excellence, ultimately leading to greater student success.

The TLC provides faculty with a range of tools and facilities to assist them in providing a rich learning experience for students. Experts at the TLC provide support in various areas including curriculum development, multimedia design, learning technology and in the overall improvement of teaching practice.

In addition, the TLC funds teaching-related projects from the Teaching Innovation Fund (TIF) for proposals by faculty members aimed at developing new methods in teaching and learning. The TLC facilitates teaching awards at the University and supports faculty in their application for external awards and funding opportunities that focus on teaching and learning.

Campus Libraries

The Campus Libraries support teaching, learning, and research at Ontario Tech University with facilities, collections, and programming.

Library Collections:

- The Library's total collections budget is $1.7 million.
- Collections include books, e-books, databases, journals, data and statistics, and multimedia materials

Support for teaching and learning:

- A dedicated librarian for each program who provides instruction, research consultations, and collection development
- Research guides for each of Ontario Tech's programs, as well as general guides for citation, copyright, and other broad topics
- Workshops and classes: custom in-class sessions, and general instruction sessions

- Three (3) online modules in Ontario Tech's learning management system, which professors can integrate seamlessly into their course shells

Research supports:

- Research consultations with subject librarians
- Extended support via the Library's virtual reference service
- Support for generative artificial intelligence: citation, copyright, and allowable use of library resources

Scholarly publishing supports:

- Research data management
- Publishing compliance with Tri-Council and other funders
- Support finding and creating open educational resources (OERs)
- Copyright advice and compliance information
- Support for authors, including reviewing author agreements
- Administration of APC waivers for faculty publishing in open access

Facilities:

- The Campus Libraries include the North Oshawa Library, which is the campus' main branch, and the Social Sciences, Humanities, and Education Library, which is located in downtown Oshawa
- The Library's locations include:
    - Extended library hours are available during peak season
    - Groups study rooms are available for student booking
    - Accessible workstations, and sit-stand desks
    - Computers and dual monitor workstations

Information Technology Resources

Ontario Tech University is a leader among North American universities in implementing and using curriculum and industry specific software in a technology-enriched learning environment (TELE). Our unique environment is adapted to each discipline based on faculty requirements and input for optimal student learning. We are committed to providing the greatest value for students' investment in education and technology while studying at Ontario Tech University.

One of the greatest advantages of Ontario Tech University's approach to TELE is that all students have equal access to the same technology, resources and services. Whether you are inside or outside of the classroom, your course-specific software allows you to work on your own or with others and enjoy seamless access to all Ontario Tech online resources. TELE supports Bring-your-own-device (BYOD) which provides you with laptop standards when acquiring the right laptop for your program and software support services onsite and online. An annual fee for TELE covers a wide range of program-specific software, technical software support, exam support and virus protection.

IT Services strives to provide quality services to students at Ontario Tech. To support these objectives, the following components are included:

Wireless network
Wireless internet connection is available in public areas and open-air locations around the Ontario Tech campus where students congregate (North Oshawa and Downtown locations).

Wired network
To ensure the success of the technology-enriched learning environment, a comprehensive data network has been installed on campus. This includes network drops in lecture halls and designated areas as well as network drops for each residence suite.

Ontario Tech students benefit from networked classrooms and learning spaces. Each ergonomically-designed space has data network connection access and electrical connections to ensure battery regeneration. In addition, classrooms include electronic projection equipment and full multimedia support.

Exam support services
IT Services provide hardware, software and technical support during examinations. IT team will be equipped with loaner laptops in the event of major technical issues.

Laptop repairs
IT Services provide on campus repairs on eligible laptop models.

IT Service Desk

The IT Service Desk is equipped with certified technicians and experienced IT professionals offering technical support services on a drop-in, call-in or email basis.

General Use Workstations (GUWs)
Ontario Tech undergraduate students are able to use general workstations available at the library and have access to Bring Your Own Device Technology-Enriched Learning Environment (BYOD TELE) model course-specific software.

Software Support
Software Support specialists are available to students on-site and online to assist in downloading/installing University software and support any other software related issues.

Printing services
Printing services are available to students in the following areas: labs, classrooms, study common areas, the Learning Commons and the Library. All Ontario Tech students receive print credits every year, more Printpacks can be purchased through the Campus Bookstore if students require additional printing services.

New Graduate Program Proposal

The program proposal and accompanying documents must address the purpose and content of the new program and the capacity of the unit to deliver a high-quality program. This template is for all proposals for new graduate programs and aligns with Ontario Tech Institutional Quality Assurance Process (IQAP) requirements and, together with the required supporting documents, will help to ensure that all evaluation criteria established by the Quality Council are addressed. All sections of the template are required.

Full name of proposed program (as it will appear on the student's transcript): (e.g., Master of Arts in Education; Master of Science in Applied Bioscience)	Graduate Diploma in Smart Grid Engineering
Degree designation and short form: (e.g., Master of Arts, M.A.; Master of Science, M.Sc.)	GDip
Cost recovery program:	☐Yes ☒No
Professional program:	☒Yes ☐No
For graduate diplomas:	☐Type 2 ☒Type 3
Faculty offering the program: (i.e., where the program will be housed/site of academic authority)	Faculty of Engineering and Applied Science
Collaborating Faculty(ies) (if applicable):	N/A
Collaborating institution(s) (if applicable):	N/A
Program delivery location:	Ontario Tech North Campus and Hybrid
Proposed program start date (please change as needed):	Fall 2027
Program proponent/contact:	Akramul Azim
Version date (please change as you edit this proposal):	May 14, 2026
Date of Academic Council Approval:	

Brief **description of the proposed program[1]:** (NOTE: Text box is formatted to limit the description to 1000 characters or less. This description should be identical to the 'Program Abstract' on page one of the proposal.)

The Smart Grid Engineering Graduate Diploma incorporates smart power systems learning through practical, project-driven coursework centered on the development of Smart Grid systems. Throughout the program, students engage directly with contemporary Smart Grid engineering tools, platforms, and methodologies as they work on a range of engineering-focused use cases. All assignments and projects are integrated into the existing suite of graduate courses, leveraging current infrastructure and resources within the Faculty of Engineering and Applied Science. No additional facilities are required, ensuring a streamlined and sustainable delivery model. This learning structure not only strengthens students' technical proficiency in designing, implementing, and evaluating Smart Grid-based systems, but also enhances their professional skills in collaborative problem-solving, project management, and responsible technology development. Through existing courses, the diploma aligns closely with Ontario Tech University's strategic focus on energy systems, preparing graduates to contribute effectively to emerging AI-driven industries and research initiatives.

[1] NOTE: Following the Quality Council's approval of the proposed program, the QA Secretariat will seek confirmation from the University that this description is appropriate to post on the Quality Council's website (Approved Programs — Ontario Universities Council on Quality Assurance (oucqa.ca))

New Graduate Program Proposal

Graduate Diploma in Smart Grid Engineering
Faculty of Engineering and Applied Science

1 Program Abstract

Please provide a brief overview of the proposed program, summarizing the key points, to be shared with the public, in 1000 characters or less. You may wish to include:

- *A clear statement of the purpose of the program (who is it for, what are the outcomes)*
- *Any program components, such as fields, pathways, or micro-credentials (note that fields, pathways, and micro-credentials are not required)*
- *Nature of the learning environment, noting any distinctive elements, including alternative modes of delivery (including online)*

Note that this statement will be used on a standalone basis and is for external purposes; what do you want potential students/advisors to know about this program? (You may wish to complete this section last.)

The Smart Grid Engineering Graduate Diploma incorporates smart power systems learning through practical, project-driven coursework centered on the development of Smart Grid systems. Throughout the program, students engage directly with contemporary Smart Grid engineering tools, platforms, and methodologies as they work on a range of engineering-focused use cases. All assignments and projects are integrated into the existing suite of graduate courses, leveraging current infrastructure and resources within the Faculty of Engineering and Applied Science. No additional facilities are required, ensuring a streamlined and sustainable delivery model. This learning structure not only strengthens students' technical proficiency in designing, implementing, and evaluating Smart Grid-based systems, but also enhances their professional skills in collaborative problem-solving, project management, and responsible technology development. Through existing courses, the diploma aligns closely with Ontario Tech University's strategic focus on energy systems, preparing graduates to contribute effectively to emerging AI-driven industries and research initiatives.

2 Academic Rationale

- *Identify what is being proposed, clearly state the program objectives, and provide an academic rationale for the proposed program (what is being created and why?)*
- *Explain the appropriateness of the program name and degree nomenclature, particularly as they relate to the program objectives*
- *Describe the mode of delivery (in-class, hybrid, online) and any work-integrated learning; outline how the delivery and components are appropriate to support students in achieving the Degree Level Expectations, program outcomes, and Program Learning Outcomes*
- *Discuss how the program addresses the current state of the discipline or area of study*
- *Describe the ways in which the program fits into the broader array of program offerings within the Faculty and the University*
- *Describe any unique curriculum or program innovations, creative components, or significant high impact practice*

The proposed GDip in Smart Grid Engineering has been designed for engineers in industry and recent engineering graduates who wish to pursue a career in the energy sector. The program structure for the GDip will be hybrid and is comprised of four (4) graduate-level courses (12 credit hours) from the following:

- ENGR 5675G AI-Enabled Smart Grid Systems Engineering
- ENGR 5960G Power Sys. Oper., Anal & Plan.
- ENGR 5965G Digital Devices and Techniques for Smart Grid Automation and Protection
- ENGR 5970G Advanced Power Electronics
- ENGR 5975G Elect. Power Distribution Syst
- ENGR 5997G Modelling and Control of Power Converters
- ENGR 5005G – Special Topics*

*Registration in Special Topics course(s) are subject to approval by the Graduate Program Director, must be relevant to the GDip program scope, and must be confirmed as enabling the student to meet the program learning outcomes and degree-level expectations for the graduate diploma.

The program name and nomenclature accurately reflect the program's scope and objectives. It signals a focused, graduate-level credential that builds on an engineering foundation while specializing in energy systems.

Innovative features of the program include integration with an established graduate program for resource efficiency and academic continuity, graduate-level assignments emphasizing applied research and industry-relevant problem-solving and a curriculum aligned with high-impact practices, fostering expertise in a sector vital to Canada's economic and environmental goals.

The Graduate Diploma in Smart Grid Engineering addresses a critical skills gap in a discipline undergoing rapid transformation due to sustainability goals, technological innovation, and infrastructure modernization.

[Optional] Describe any fields and/or any pathways from related programs. (Graduate programs are not required to have fields in order to highlight an area of strength or specialization within a program, nor are they required to provide specific pathways from programs at the college, bachelor, or other level.)

N/A

3 University Mission, Vision, Integrated Academic and Research Plan, and Strategic Mandate Agreement

- *Detail the consistency of the program objectives with the Mission, Vision, Integrated Academic and Research Plan, and Strategic Mandate Agreement*
- *Describe how the program contributes to the University's Mission and Vision*
- *Explain how the program aligns with the goals and priorities outlined in the Faculty's(ies') and University's Integrated Academic and Research Plan*
- *Is this program consistent with the mandate of the sector? (i.e. technically/vocationally/theoretically/academically oriented for universities) Identify how the program fits within one or more areas of strength or growth in Ontario Tech University's Strategic Mandate Agreement*

The Smart Grid Engineering Graduate Diploma is fully consistent with the academic and research-oriented mandate of the university sector in Ontario. As a graduate-level program, it combines strong theoretical foundations in electrical power systems with applied, project-based learning that reflects the expectations of university education. The curriculum emphasizes advanced topics such as power system analysis, renewable energy integration, intelligent grid control, and energy data analytics, while fostering critical thinking, research-informed design, and innovation.
The program aligns closely with key areas of strength and growth identified in Ontario Tech University's Strategic Mandate Agreement (SMA), particularly in clean energy, advanced manufacturing, and digital technologies. Smart grid systems are central to the modernization of energy infrastructure and the transition to sustainable energy systems—areas in which Ontario Tech has established expertise.

4 Need, Demand, and Duplication

Provide evidence of the need and demand for the program and how this has been determined, focusing on:

- *Student interest:*

including number of prospective student inquiries, applications and registrations for similar programs, results from surveys/focus groups of existing students, graduates, or professionals in the field (include information about domestic vs. international student interest)

- *Societal need:*
  - *including evidence of the need for graduates of the program and in which fields (within academic, public, and/or private sectors);*
  - *employment opportunities for prospective graduates, indicating at least three occupations in which graduates from this proposed program may be employed, selecting at least one using the Ontario Job Futures website and one from the Government of Canada Labour Market Trends website; you may also wish to review the Durham Workforce Authority website and provide any relevant sector portfolio or local/community impact information;*
  - *for professional programs, a description of the program's congruence with current regulatory requirements*
  - *note if any employers in the area support the need for this program and include a letter(s) of support as an additional appendix*

Ontario labour-market data point to a growing need for graduates in smart-grid engineering as the province modernizes its electrical infrastructure and responds to rising electricity demand. Government of Canada labour tools show positive near-term prospects for power-system and electrical-engineering occupations, while national projections estimate nearly 15,000 openings over the next decade—suggesting several thousand opportunities in Ontario when scaled proportionally. Regional insights from the Durham Workforce Authority further highlight shortages in energy, digital infrastructure, and technical engineering skills. Together, these trends indicate strong and sustained demand over the next 5–10 years for engineers with expertise in power systems, grid modernization, protection and control, renewable integration, and energy-storage technologies.

- *Describe how the program is distinct from other programs at Ontario Tech. Is it reasonable to anticipate this program might affect enrolment in other related programs? If so, how might this be addressed?*

The GDip in Smart Grid engineering is distinct from other programs at Ontario Tech. Although the Smart Grid specialization courses exist for the ECE undergraduate programs, the GDip is designed for those who did not have the opportunity to take the Smart Grid Engineering Specialization during their undergraduate studies.

- *Is this a new area of study? Please explain:*

The GDip builds upon the already existing graduate electrical engineering courses, so it is not a new area of study. However, it is a further step into expanding Ontario Tech's offerings that contribute to the training needs of the energy sector.

- *Identify similar or complementary programs offered by other universities with specific reference to Ontario and Canadian examples.*
- *Provide additional overall comment on the justification for any duplication*

Graduate Programs (Master's / Diplomas) Related to Smart Grid in Ontario:

1. Toronto Metropolitan University (TMU) — Professional Master's Diploma in Energy & Innovation
    - This is a *graduate-level diploma* (PMDip) that *explicitly includes smart grid* concepts. Toronto Metropolitan University (TMU)+2Toronto Metropolitan University (TMU)+2
    - Core courses include "Smart Grids – Electricity, Petroleum and Infrastructure", demand management, energy storage, electricity

markets, plus a final project. Toronto Metropolitan University (TMU)+2Toronto Metropolitan University (TMU)+2
    - Part-time, designed for working professionals. Toronto Metropolitan University (TMU)
    - Students have access to TMU's Schneider Electric Smart Grid Laboratory. Toronto Metropolitan University (TMU)+1
2. University of Toronto — MEng in Electrical & Computer Engineering
    - U of T's MEng program includes a *Smart Grid Case Studies* course (ECE1092H). Electrical & Computer Engineering
    - This is a course-based master's (full-time, part-time) suitable for engineers looking to specialize. Electrical & Computer Engineering
3. University of Western Ontario (Western) — Graduate Program in Electrical & Computer Engineering (Power Systems)
    - Western's ECE department offers an MEng (and a Graduate Diploma + master options) with access to power systems simulators and distributed control systems. Western Engineering
    - Their power systems research includes smart grid–relevant topics.
4. University of Waterloo — Power & Energy Systems (MASc, MEng, Online MEng)
    - Waterloo's ECE department has a *Power and Energy Systems Group* that includes smart grid research. University of Waterloo
    - They offer an online MEng in Electric Power Engineering, plus MASc and PhD in power / smart grid–relevant areas. University of Waterloo

5 Enrolment Information

- *Please complete Table 1 and provide, in paragraph form, information regarding enrolment projections*
- *Please determine the academic year when the program enrollment will reach a steady-state and add an asterisk (*) in the corresponding box beside the number*
- *This table should reflect normal estimated program length. (Table may be adjusted as necessary.)*

Table 1: Projected Enrollment by Academic and Program Year

	Academic Year					
	2026-2027	**2027-2028**	**2028-2029**	**2029-2030**	**2030-2031**	**2031-2032**
Level of Study						
Diploma year 1	10	10	20*	20	20	20
Total Enrollment	10	10	20	20	20	20

Projected enrollment would initially be around 10-15 students per year. The planned steady-state is 20 students per year. Note these directed offerings may be offered in alternate formats other than the traditional 12-week semester.

6 Admission Requirements

Outline the formal admission requirements as they will appear in the Academic Calendar

Minimum Academic Requirements for Graduate Diploma Programs:

- Hold a four-year honours degree or its equivalent from a recognized institution in the area of graduate study or a closely related subject.
- A minimum B-minus average (GPA: 2.7 on a 4.3 scale).
- Applicants that have a degree in subject areas outside of engineering or those who do not meet the minimum GPA requirements, but have relevant engineering experience will be evaluated on an individual case-by-case basis.

- *Explain how the program's admission requirements are appropriate for the program objectives and program learning outcomes: How will they help to ensure students are successful? How do they align with the learning outcomes of the program?*
- *Explain in detail any additional requirements for admission to the program such as minimum grade point average, special language, portfolio, etc. (and how the program recognizes prior work or learning experience, if applicable)*
- *Indicate the programs from which students may be drawn*

Graduates from any Canadian accredited undergraduate engineering program (or its equivalent) will be eligible to enrol in the GDip, including: Electrical Engineering, Software Engineering, Energy Engineering, Industrial Engineering and Mechatronics Engineering.

To provide applicants looking to re-skill for the power sector the potential opportunity to do the GDip in Smart Grid Engineering, applicants from non-engineering programs or those who do not meet the minimum GPA requirements will be considered on a case-by-case basis.

7 Program Requirements, Learning Outcomes, Degree Level Expectations (DLEs), and Program Structure

Participate in program learning outcome (PLO) development sessions and complete the PLO mapping document to describe what the student will know or be able to do by the end of the program and how that knowledge or skill will be demonstrated; include the mapping document as an appendix; refer to the new PLOs and PLO mapping document to complete the questions in this section.

Please see Appendix A for a list of the Program Learning Outcomes, Degree Level Expectations, Courses, and Assessments.

Discuss how the design, structure, requirements, and delivery of the program are appropriate for the program learning outcomes, program outcomes, and Degree Level Expectations. Guidance on program objectives and program-level learning outcomes, including examples, is available here. Be sure to include the following in your response:

- *The sequencing of required courses or other learning activities*
- *The mode of delivery of the program (is this an online or hybrid program?)*
- *Will the program be offered full-time and/or part-time; what is the program length for both full-time and part-time students; how will the program requirements reasonably be completed within the proposed time?*
- *A clear indication of how faculty scholarship and research is integrated; for researched-focused graduate programs, provide a clear indication of the nature and suitability of the major research requirements for degree completion; for professional graduate programs, how an understanding of research in this area will be reflected in curriculum and/or assessment*
- *How the program will be administered*
- *The unique curriculum or program innovations or creative components in this program*
- *The ways in which the curriculum addresses the current state of the discipline*
- *If the program is to be accredited, include with the above details about the accreditation requirements and add the accreditation tables, if available, as an additional Appendix*

Students complete four (4) graduate-level courses (12 credit hours total) from the list below, providing both theoretical understanding and practical training in Smart Grid-based engineering:

- ENGR 5675G AI-Enabled Smart Grid Systems Engineering
- ENGR 5960G Power Sys. Oper., Anal & Plan.
- ENGR 5965G Digital Devices and Techniques for Smart Grid Automation and Protection
- ENGR 5970G Advanced Power Electronics
- ENGR 5975G Elect. Power Distribution Syst
- ENGR 5997G Modelling and Control of Power Converters
- ENGR 5005G – Special Topics*

*Registration in Special Topics course(s) are subject to approval by the Graduate Program Director, must be relevant to the GDip program scope, and must be confirmed as enabling the student to meet the program learning outcomes and degree-level expectations for the graduate diploma.

Delivery mode for the courses will be hybrid. In addition to the traditional 12-week semester delivery.

The courses available in the program cover the state-of-the-art in Smart Grid engineering and are taught by instructors with subject matter expertise.

The diploma can be completed on a part-time or full-time basis and it provides a flexible pathway for professionals seeking to upskill in Smart Grid Engineering or transition into leadership roles in smart-industry settings.

All course deliverables will be designed to ensure that the students are meeting the program learning outcomes and support the achievement of Graduate Degree Level Expectations. Assessments will not only measure content knowledge but also foster advanced competencies expected at the graduate level.

Provide evidence that each graduate student is required to take a minimum of two-thirds of the course requirements from among graduate-level courses

All courses that are required for the GDip are graduate level.

Describe how the principles of Equity, Diversity, Inclusion, and Decolonization have been considered:

- *Does the program contain concepts, materials, or resources from scholars/professionals who are part of one or more historically marginalized groups?*
- *Are multiple perspectives represented in the program, such as those offered by those who are Indigenous, Black, Persons of Colour, and/or 2SLGBTQIA+?*
- *How has accessibility been considered? More specifically, have the needs of students with disabilities been integrated into the program design (e.g., the ways that students are asked to demonstrate their learning)? Please provide information beyond the services offered by Student Accessibility Services*
- *Discuss how the program structure and delivery reflect universal design for teaching and learning and how the potential need to provide mental or physical health accommodations have been considered; describe how the program structure and delivery methods promote student well-being and resiliency and any elements that support a sense of community in the program*
- *Will this program provide space to allow for the discussion of other viewpoints outside the "dominant, Western narrative"?*

The Faculty of Engineering and Applied Science (FEAS) is fully committed to Equity, Diversity, and Inclusion (EDI), including in all its courses and all its research activities. The material covered in this program considers the development of AI software and systems that serve the public, so it is critical that EDI considerations are incorporated into the development of these systems, in particular ensuring these systems are accessible for all users. The courses, where appropriate, will cover these issues to ensure that students understand the importance of designing accessible systems.

As an example of its focus on EDI, FEAS has the Women in Engineering Society with the following goals:

- We foster a welcoming and engaging space for female engineering students to create a sense of community on and off campus.
- We connect female students to future employers and engineering career opportunities across Canada, and showcase successful female engineering professionals.
- We equip our students with professional skills, connections, and inspiration to prepare them for their professional careers.
- We give back to the community by running outreach events to encourage and inspire young women to pursue an education in engineering.

In addition to the above, FEAS's Engineering Outreach offers programs targeting Indigenous and black students to inspire and encourage them to pursue engineering.

For students who have accommodation needs, existing Student Accessibility Services (SAS) supports will be available to students who require specific accommodations.

Does this Program contain any Indigenous content? ☐ Yes ☒ No ☐ Unsure

For more information on how Indigenous content is defined at Ontario Tech University and how to consult with the Indigenous Education Advisory Circle (IEAC), please refer to the Protocol for Consultation with the Indigenous Education Advisory Circle.

Has the IEAC been contacted ☐ Yes ☒ No If yes, when? [Insert Date Here]

What was the advice you received from the IEAC, and how has it been included in your proposal?

N/A

Did the IEAC ask you to return the proposal to them for review? ☐ Yes ☐ No

If yes, have they completed their review? ☐ Yes ☐ No ☐ N/A

Is there an experiential learning component (e.g. workplace learning, co-op, internship, field placements, service learning, mandatory professional practice) to the program? If yes, please describe this component in 2500 words or less. Include confirmed partners, duration of the experiential learning component(s), and projected number of placements (where applicable) and provide letters of support.

N/A

8 Assessment of Teaching and Learning

Using examples from the PLO mapping document, address the following. Please see Guidance on Assessment of Teaching and Learning and speak with the Teaching and Learning Centre (TLC) for advice on how to satisfy these criteria.

- *Appropriateness of the proposed methods for the assessment of student achievement of the intended program learning outcomes and Degree Level Expectations*
- *Describe plans for documenting and demonstrating:*

- *The overall quality of the program*
- *Whether the program is achieving in practice its proposed objectives;*
- *Whether the students are achieving the program learning outcomes and a level of performance consistent with the Degree Level Expectations; and*
- *How the resulting information will used to inform continuous program improvement*

The learning outcomes for the program are achieved through a combination of graduate-level course work, including assignments, exams, projects, and presentations.

Learning activities and materials in graduate courses will be carefully designed to ensure that learners are deliberately exposed to study, the majority of which is at, or informed by, the forefront of engineering theory and practice.

The courses have been designed to give students key knowledge in Smart Grid engineering as well as an opportunity for advanced development of generic skills such as communication and teamwork. In addition, there will be scholarly activities of independent investigation, report writing, and presentations.

Throughout the curriculum, learning activities are planned, and student progress will be monitored to ensure that safety, professional guidelines, and ethical responsibilities relevant to engineering are modelled, developed, and evaluated.

Student feedback surveys will be completed at the end of each course delivery to gather feedback. As well student performance in each course will be monitored yearly. The Graduate Program Director responsible for the program will review both the student feedback surveys and the student performance to ensure that the program is meeting its goals. In addition, the Industrial Advisory Committee will also provide feedback on the program delivery. Insights from these surveys and reviews will be documented and used to identify specific areas for improvement, inform curriculum adjustments, and guide enhancements to teaching and learning strategies.

Any required changes to curriculum, assessment methods, delivery, or administration are implemented as appropriate and feasible at the discretion of the Faculty Dean. Curricular changes are then submitted and documented through appropriate Faculty and University committees consistent with standard curricular change policies and procedures as identified in the IQAP.

To ensure sustained quality, program effectiveness will be assessed and monitored through the cyclical review process, providing actionable insights for continuous improvement. In addition to the external review every eight years, Ontario Tech's Academic Resource Committee (ARC) requires a brief report at program launch and a full report one-year after the launch of a new program. The one-year report will ask the program to review enrollment data, admission averages, and provide an analysis of successes and challenges encountered in the first year. If there are areas of concern and it is deemed necessary, ARC will make recommendations to enhance program effectiveness and student success and may request a subsequent report. If If required, the subsequent report will address key curricular and student data (e.g., GPA, retention data, etc.) as well as any outstanding recommendations from the one-year report. Pending the ARC's review, further documentation may be required of the program for ongoing monitoring.

9 Calendar Copy and Program Map(s)

- *Provide, as an Appendix using the template provided, a clear and full calendar copy. The template ensures consistency across all programs in the Academic Calendar*
- *Provide, as an Appendix, a full list of all courses included in the program including course numbers, titles, and descriptions. Please indicate clearly whether the courses are new/existing. Include full new course proposals for new courses, the template for which will be provided by CIQE. Include the most recent course descriptions for existing courses. If you are making changes to the existing courses, also include a course change form. In an Appendix referenced in Section 11 below, you will note which faculty members are expected to teach in the program and who is responsible for developing any new courses.*

Please see Appendix B for the Calendar Copy for the program and Appendix C for the List of Program Courses and Descriptions.

10 Consultation

- *Describe the expected impact of the new program on the nature and quality of other programs delivered by the home and collaborating Faculty(ies) and any expected impact on programs offered by other Faculties*

- *Outline the process of consultation with the Deans of Faculties that will be implicated or affected by the creation of the proposed program*
- *Provide letters of support for the program from Deans at Ontario Tech and/or from other institutions/partners*
- *Describe any consultation undertaken with regard to the principles of Equity, Diversity, Inclusion, and Decolonization not covered in Section 7 above*

The Graduate Diploma in Smart Grid Engineering is designed to complement, rather than compete with, existing programs within the Faculty and across the University. By leveraging shared lectures with the Graduate ECE course offerings, the GDip enhances resource efficiency without diminishing the quality of graduate offerings.

The Office of the Registrar and the School of Graduate and Postdoctoral Studies were also consulted in the development of this program. No issues were raised.

Several discussions were held at the various levels of department and faculty.

As noted above, there will be no impact on other programs offered at Ontario Tech.

11 Resource Requirements

Resource Summary
Provide a brief summary *statement of the funding requirements and the rationale. Please consult with the Provost's Office early regarding any resource implications described in this section.*

As the program is leveraging the existing graduate ECE courses, it is anticipated there will be no major resource requirements. By leveraging existing graduate course offerings, the GDip enhances resource efficiency without diminishing the quality of graduate offerings.

The resource requirements outlined in Section 11 have been reviewed by the Academic Resource Committee (ARC): 9 December 2025

11.1 Human Resource Requirements

Faculty – New and Existing Requirements

Complete, as an Appendix, the table detailing the list of faculty committed to the program and provide, in paragraph form below, the following:

- *Clear evidence that faculty have the recent research or professional/clinical expertise needed to sustain the program, promote innovation, and foster an appropriate intellectual climate*
- *Additional information to demonstrate how supervisory loads are distributed in light of qualifications and appointment status, if not clear from the table*
- *Evidence of the participation of a sufficient number and quality of faculty who will actively participate in the delivery of (teach and/or supervise) the program and achieve the goals of the program and foster the appropriate academic environment, contribute substantively to the program, and commit to student mentoring*
- *Describe the role of any sessional/part-time faculty and any adjunct faculty; provide an approximate percentage used in the delivery of the program and the plans to ensure the sustainability of the program and quality of the student experience*
- *Explain the provision of supervision of any experiential learning opportunities; how will supervisory loads be distributed?*

Provide the CVs of all faculty who appear in the table of faculty committed to the program. These CVs should form a separate document with a table of contents and should have all CVs in alphabetical order by surname. CVs should be submitted in a consistent format.

The program will be delivered by existing ECSE faculty members.

Please see Appendix D Faculty Information for a table detailing the list of faculty committed to the program and separate file for Curriculum Vitae (provided to the Quality Council for review).

Are additional faculty required to be able to offer this program? ☐ Yes ☒ No

Please explain, i.e. Why would new faculty not be required? Would this change over time? What year will the faculty hire be required, and are there additional criteria associated with the hiring requirement (e.g. enrolment levels, program growth, University or Faculty priorities)?

Since the course delivery will leverage the graduate ECE course offerings, no additional human resources will be required, unless the number of students enrolled reaches the point where more than one section of a given course needs to be offered. Details and timing of proposed hirings are coordinated and confirmed with the Provost's Office through regular operational conversations.

N/A

Additional Academic and Non-Academic Human Resources

Give details regarding the nature and level of TA support required by the program, the level of administrative (i.e. new program director appointment), and academic advising support, etc. If new staff resources are needed, provide further details below.

No TAs will be required unless the enrolment is large enough to warrant it.

Are additional staff required to be able to offer this program? ☐ Yes ☒ No

If yes, please outline what year the staff hire(s) will be required and any additional criteria associated with the hiring requirement (e.g. enrolment levels, program growth, University or Faculty priorities):

N/A

11.2 Learning Resources

Provide an opening statement to describe the resources to sustain the quality of scholarship and research activities of undergraduate and graduate students, enhance the learning and teaching environment, promote student well-being and resiliency in the learning and teaching environment; refer as noted to the two standard Appendices. Please contact your Subject Librarian as you begin your proposal to request the 'Library statement for new program proposal'.

The program will leverage existing institutional resources and targeted supports, including access to modern facilities, technology-enabled classrooms, and research infrastructure. Dedicated student services, academic advising, and wellness initiatives will promote student well-being and resiliency, ensuring a supportive and inclusive learning environment.

Please see Appendix E for a University statement concerning Learning Resources.

11.3 Information Technology

Provide a summary of evidence that there are adequate information technology resources to sustain the quality of scholarship and research activities of undergraduate and graduate students; address any unique requirements including renovations to existing space, Faculty-specific space/equipment, etc.; are there additional technology requirements specific to being able to successfully launch this program? Refer as noted to the standard Appendix.

The institution provides robust information technology resources to support high-quality scholarship and research activities for graduate students. These include access to modern computing facilities, high-speed networks, secure data storage, and discipline-specific software to enhance teaching and learning. Existing spaces are equipped with technology-enabled classrooms and research infrastructure ensuring the program can be successfully implemented and sustained.

Please see Appendix F for a University statement concerning information technology services.

Supporting information for online and hybrid programs

Where applicable, please provide the following details for online and hybrid programs:

- *Describe the adequacy of the technological platform to be used for online delivery*
- *Describe how the quality of education will be maintained*
- *Describe how the program objectives will be met*
- *Describe how the program learning outcomes will be met*
- *Describe the support services and training for teaching staff that will be made available*
- *Describe the sufficiency and type of supports that will be available to students*
- *How has accessibility been considered?*
- *What strategies have been considered to accommodate students with disabilities?*
- *Have the principles of Universal Design been considered?*
- *Will course content be offered in both written and audible forms (e.g., closed captioning, transcriptions)?*
- *Is course content designed logically and is it easy to follow with limited instruction?*
- *Are assignment expectations clear (i.e., a rubric)?*
- *Have the needs of students with limited or unreliable access to wi-fi been considered (e.g., breaking down pre-recorded lectures into maximum 10-minute videos)?*

The program will leverage existing University IT infrastructure. Ontario Tech is a laptop university where students bring their own laptop devices and are provided access to a software portal where they can download any necessary software required for their courses, including a variety of engineering specific packages such as Python, Git, MATLAB, and other AI tools as required.

The hybrid delivery of the courses will make use of Ontario Tech's flexible hybrid classrooms that allow for synchronous delivery with active participation from students both in room and online and the ability for all students to see all other students.

11.4 Financial Support for Graduate Students

Provide evidence that financial assistance for students, including TA-ships where applicable, will be sufficient to ensure adequate quality and numbers of students.

No financial assistance will be provided as this is a professional program.

11.5 Space and Infrastructure Requirements

- *Provide evidence that there are adequate resources to sustain the quality of scholarship and research activities of undergraduate and graduate students, including information about laboratory and research space access, where applicable, and office space; address any unique requirements*
- *Highlight the change in the number of faculty, students, administrative staff, etc. as well as information on changes in equipment and activities; renovation of existing space; or whether the current space allocation will accommodate the new program*
- *Are there additional space requirements specific to being able to successfully launch this program?*

The hybrid delivery of the courses and the leveraging with the current graduate course delivery will have minimal impact on classroom requirements.

No additional space requirements are required.

11.6 Other Resource Implications

- *Note here if this new program may impact enrolment agreements with other institutions/external partners that exist with the Faculty/Provost's office. Indicate if the new program will require changes to any existing agreements with other institutions or will require the creation of a new agreement. Please consult with CIQE (ciqe@ontariotechu.ca) regarding any implications to existing or new agreements*
- *Are there inter-Faculty teaching implications?*
- *If this is a new joint program with another institution, indicate how the program will be administered and how program reviews will be conducted (refer to the Ontario Tech Institutional Quality Assurance Process Policy for more information)*

The program does not impact any existing agreements Ontario Tech has with institutional and external partners. In addition, there are no inter-Faculty implications.

12 Closing Statements Regarding Program Quality

- *Please summarize the appropriateness of the faculty's collective expertise and how it contributes substantively to the proposed program; use indicators to provide evidence of the quality of the faculty (e.g., qualifications, funding, honours, awards, research, innovation, and scholarly record).*
- *Please summarize how the program and faculty will ensure the intellectual quality of the student experience.*

The GDip in Smart Grid Engineering has been designed to meet the demands of this rapidly growing sector. The Faculty has several professors (with also outside faculty members with graduate faculty status) with energy/power expertise who can deliver courses as needed. The program has been designed to meet the needs of the energy sector. The Faculty has a history of quality program delivery that will serve as a model for the delivery of this new program.

Appendices

Please include at minimum the below. Additional Appendices may be added, as appropriate. Appendices should ultimately be listed below, attached as separate documents, and clearly labelled (A, B, C, etc.) in the order in which they are first mentioned in the document.

Appendix A: Program Learning Outcome Alignment Map to DLEs, Courses, and Assessments
Appendix B: Calendar Copy
Appendix C: List of Program Courses and Descriptions for Existing Courses
Appendix D: Faculty Information
Appendix E: Learning Resources
Appendix F: Information Technology Resources

Items to be separate documents sent to CIQE:

New Program Funding and Tuition form (for CIQE use only)
Budget Spreadsheet (for ARC use only)
Curriculum Vitae (for Quality Council use only)

Graduate Diploma – Smart Grid Engineering

PLO #	Program Learning Outcomes
PLO 1	Apply advanced concepts, principles, and theories in the field of Smart Grid engineering to analyze and solve complex engineering problems and practices.
PLO 2	Utilize analytical, numerical, experimental, and interpretive skills in conducting research projects in the field of Smart Grid Engineering.
PLO 3	Design and conduct engineering experiments to identify problems and opportunities for system analysis, design, improvement, and computational optimization in the field of Smart Grid engineering.
PLO 4	Describe the complexity of Smart Grid and exhibit comprehensive knowledge of fundamental principles and methodologies.
PLO 5	Evaluate the social, professional, and ethical implications inherent in the advancement of applications within the field of Smart Grid engineering.
PLO 6	Demonstrate effective skills for oral and written communication, project management, and teamwork in the field of Smart Grid engineering..
PLO 7	Develop strategies for continuous education and lifelong learning in the field of Smart Grid engineering.

Graduate Diploma – Smart Grid Engineering

	Degree Level Expectation	Depth and Breadth of Knowledge		Research and Scholarship		Application of Knowledge	Professional Capacity and Autonomy	Awareness of Limits of Knowledge	Communication Skills	
	DLE Description	A systematic understanding of knowledge, including, where		A conceptual understanding and methodological competence that:		Competence in the research	a) The qualities and transferable skills necessary for employment	Cognizance of the complexity	The ability to communicate ideas, issues and conclusions clearly.	
	Program Learning Outcomes	PLO1	PLO4	PLO2	PLO3	PLO1	PLO5	PLO6	PLO5	PLO7
	PLO Description	Apply advanced concepts,	Describe the complexity of	Utilize analytical, numerical,	Design and conduct scientific experiments to identify	Apply advanced concepts,	Evaluate the social, professional, and ethical implications inherent in	Develop strategies for	Evaluate the social,	Demonstrate effective skills for
Course No.	Course Title									
ENGR 5960G	Power System Operations, Analysis and Planning	2, 4	2, 4	2, 4	2, 4	4	4,7,3		4,7,3	3
ENGR 5970G	Advanced Power Electronics	4,7,3	4,7,3	4,7,3	4,7,3	4,7,3	4,7,3	4,7,3	4,7,3	4,7,3
ENGR 5975G	Electrical Power Distribution Systems	2, 4	2, 4	2, 4	2, 4	4	4,7,3		4,7,3	3
ENGR 5965G	Digital Devices and Techniques for Smart Grid Automation and	4,7,3	4,7,3	4,7,3	4,7,3	4,7,3	4,7,3	4,7,3	4,7,3	4,7,3
ENGR 5675G	Modelling and Control of Power Converters	2, 4	2, 4	2, 4	2, 4	4, 7	4,7,3		4,7,3	3
ENGR 5997G	AI-Enabled Smart Grid Systems Engineering	7,3	7,3	7,3	7,3	7,3	7,3	7,3	7,3	7,3
Degee of Implementation:		Assessments - Identify types of relevant assessments and number them (do not have to be in rank order); those listed below are only examples								
	Introduced	1 - Test		4 - Assignment		7 - Group project				
	Reinforced	2 - Exam		5 - Essay						
	Mastered	3 - Presentation		6 -Thesis						

Smart Grid Engineering, Graduate Diploma

General Information

The Graduate Diploma (GDip) in Smart Grid Engineering incorporates smart power systems learning through practical, project-driven coursework centered on the development of Smart Grid systems. Throughout the program, students engage directly with contemporary Smart Grid engineering tools, platforms, and methodologies as they work on a range of engineering-focused use cases. All assignments and projects are integrated into the existing suite of graduate courses, leveraging current infrastructure and resources within the Faculty of Engineering and Applied Science. No additional facilities are required, ensuring a streamlined and sustainable delivery model. This learning structure not only strengthens students' technical proficiency in designing, implementing, and evaluating Smart Grid-based systems, but also enhances their professional skills in collaborative problem-solving, project management, and responsible technology development. Through existing courses, the diploma aligns closely with Ontario Tech University's strategic focus on energy systems, preparing graduates to contribute effectively to emerging AI-driven industries and research initiatives.

Admission Requirements

In addition to the general admission requirements for graduate studies, applicants must meet the following program-specific requirements:

Minimum Academic Requirements for Graduate Diploma Programs:

- Hold a four-year honours degree or its equivalent from a recognized institution in the area of engineering or a closely related subject.
- A minimum B-minus average (GPA: 2.7 on a 4.3 scale).
- Applicants that have a degree in subject areas outside of engineering or those who do not meet the minimum GPA requirements, but have relevant engineering experience will be evaluated on an individual case-by-case basis.

Graduates from any Canadian accredited undergraduate engineering program (or its equivalent) will be eligible to enrol in the GDip, including: Electrical Engineering, Software Engineering, Energy Engineering, Industrial Engineering and Mechatronics Engineering.

Note, the consideration of applicants from non-engineering programs or those who do not meet the minimum GPA requirements is to provide applicants looking to re-skill for the power sector the potential opportunity to do the GDip in Smart Grid Engineering.

Part-time studies

To facilitate access to all potential students, part-time studies are permitted. In particular, engineers in industry may wish to pursue a graduate diploma program through part-time studies.

Graduate diploma requirements

For the graduate diploma, students must complete the four courses below for a total of 12 credits.

Note: Graduate diploma students are not permitted to take courses outside of their home program course listings for program credit. In addition, they may not take any senior fourth-year undergraduate courses from the Faculty of Engineering and Applied Science in lieu of a graduate course.

Course listings

- ENGR 5005G Special Topics*****
- ENGR 5960G Power Sys. Oper., Anal & Plan.
- ENGR 5970G Advanced Power Electronics
- ENGR 5975G Elect. Power Distribution Syst
- ENGR 5965G Digital Devices and Techniques for Smart Grid Automation and Protection
- ENGR 5675G AI-Enabled Smart Grid Systems Engineering
- ENGR 5997G Modelling and Control of Power Converters

*****upon approval by Graduate Program Director and relevant to the scope.

Program learning outcomes

The following outcomes outline the knowledge and skills students will have achieved upon completion of the program.

Program Learning Outcomes – Smart Grid Engineering, Graduate Diploma

Appendix C - List of Program Courses and Course Descriptions

List of Program Courses

The program consists of four graduate-level courses (12 credits total), selected from the following:

Course Code	Course Name	
ENGR 5675G	AI-Enabled Smart Grid Systems Engineering	Existing Course - course description enclosed
ENGR 5960G	Power System Operations, Analysis and Planning	Existing Course - course description enclosed
ENGR 5965G	Digital Devices and Techniques for Smart Grid Automation and Protection	Existing Course - course description enclosed
ENGR 5970G	Advanced Power Electronics	Existing Course - course description enclosed
ENGR 5975G	Electrical Power Distribution Systems	Existing Course - course description enclosed
ENGR 5997G	Modelling and Control of Power Converters	Existing Course - course description enclosed
ENGR 5005G	Special Topics	Existing Course - course description enclosed

ENGR 5675G - AI-Enabled Smart Grid Systems Engineering
This course focuses on highlighting different artificial intelligence techniques and their applications in smart grid systems. The purpose of this course is to explore the use of artificial intelligence techniques to address problems in power and energy systems considering the smart grid operation. Topics include the applications of artificial intelligence techniques such as fuzzy systems, neural networks, machine learning, deep learning, reinforcement learning and optimization in renewable energy integration/operation, smart grid stability, power quality, energy management systems, electric vehicles, smart grid forecast and dispatch applications.

ENGR 5960G - Power System Operations, Analysis and Planning
This course covers resistance, inductance and capacitance of transmission lines; steady state transmission capacity; network compensation; voltage management; load flow simulation; transient stability simulation; system security; system planning; and symmetric operation of power systems.

ENGR 5965G - Digital Devices and Techniques for Smart Grid Automation and Protection
This course explores digital devices and technologies essential for smart grids, with a focus on both hardware and software aspects of protective relays and automation systems. Topics include digital algorithms for phasor estimation and the protection of critical components such as lines, transformers, generators, and motors. Advanced concepts, including synchronized phasor measurements, adaptive relaying, relay testing, and integrated protection and control systems, will be examined alongside associated communication challenges. The course also introduces IEC 61850, the latest standard for substation protection and automation.

ENGR 5970G - Advanced Power Electronics
This course covers fundamentals of power conversion techniques: single-phase and three-phase rectifier and inverter circuits; switch mode converters and power supplies; resonant converters with zero-voltage switching and zero-current switching; multilevel converters; and application of converters to adjustable speed motor drives and other industrial applications.

ENGR 5975G - Electrical Power Distribution Systems
This course covers the following topics in electric power distribution system engineering: Load characteristics; distribution transformer loading; feeder load; distribution system modeling; distribution feeder analysis; distribution system automation; calculation of voltage drops in lateral distribution systems; calculation of power losses in distribution systems; application of capacitors to distribution systems; distribution system voltage regulation; solar photovoltaic and wind-based distributed generation; energy storage systems for electric utility systems; the concept of smart distribution system in electric grid and its applications; and electric power quality including monitoring, detection and analysis of variations and events.

ENGR 5997G - Modeling and Control of Power Converters
This course covers the modeling and control techniques for switching power converters. Switching power converters are non-linear and time-varying systems. Small signal models and large signal models are needed to design an optimal closed loop system. Stability issues will be discussed for a power system composed of several non-linear power electronic circuits. Control methods play a very important role in achieving optimal dynamic performance. Different control techniques for switching power converters will be studied. In addition to the conventional analogue control method, (such as direct duty cycle control, peak current programmed control, average current mode control, etc.), digital control (such as fuzzy logic control, sliding mode like control, etc.) will also be analyzed. The course will also analyze digital control techniques for AC-to-DC power converters to achieve power factor correction. It is expected that each student will do a design project using one or more of the techniques covered in the course.

ENGR 5005G - Special Topics
Presents material in an emerging field or one not covered in regular offerings. This course may be taken more than once, provided the subject matter is substantially different.

Appendix D – Faculty Information

Please include here only those currently at the institution and affiliated with the program. Examples in purple to be removed.
Where available, link each faculty name to their Research or Profile page on the website.

Name and Faculty Status/Rank	Terminal Degree	Home Faculty/Unit	Areas of Expertise
Professor			
Walid Morsi Ibrahim	PhD	Faculty of Engineering and Applied Science	• Smart Grid: Design, analysis, operation management and control • Signal Processing and data analytics of power systems • Automation, protection and management of power systems
Tarlochan Sidhu	PhD	Faculty of Engineering and Applied Science	• Power system protection, monitoring, automation and control • Smart grid • AI and signal processing applications in power systems • Integration of renewable energy sources into grid • Cybersecurity in power systems
Sheldon Williamson	PhD	Faculty of Engineering and Applied Science	• Autonomous Mobility/Transportation • Batteries • Charging, Electric Energy Storage Systems • Electric Machines • Motor Drives • Power Electronics • Renewable Energy Systems • Transportation Electrification
Mohamed Youssef	PhD	Faculty of Engineering and Applied Science	• Propulsion Systems for the Automotive and Innovative Technologies like Hyperloop • Power Train for New Drives like Water Pumps

			• Railway Electromagnetic Compatibility (EMC) • Railways Traction Substation Design Planning, and Commissioning • Power Electronics Applications for the Information Technology (IoT) • Power Electronics Applications in the Innovative Renewable Energy Resources • Power Supply Design for the Oil/Gas • Power Systems Operation and Stability

Existing Non-Financial Student Support Services

School of Graduate and Post-Doctoral Studies

Quality graduate and postdoctoral education combines teaching, research, professional development, disciplinary community involvement and personal growth. It is by nature a shared responsibility between students, faculty members, the programs and a large number of support units, with overarching administration being provided by the School of Graduate and Postdoctoral Studies.

The School of Graduate and Postdoctoral Studies (SGPS) furthers the scholarly mission of the university by providing academic and administrative support to the university's postgraduate educational, research, innovation and international activities. Our responsibilities include graduate program development, graduate enrolment management, oversight of academic and quality standards, and the implementation of policies and practices that enhance graduate/postdoctoral scholarly success, career readiness and personal growth. SGPS supports prospective, new and current graduate students through many administrative services including, but not limited to, recruitment, admission, registration, funding and scholarships, orientation, professional development workshops and events, and processing of final theses, projects and papers. SGPS is a single-point-of-contact, multifunctional administrative unit tailored to the complete "life-cycle" of graduate students, providing coordinated support to students and all other stakeholders.

Student Life

Ontario Tech University, as a relatively small campus community, has a centralized delivery model for many student supports. All undergraduate students have access to an extensive support system that ensures a quality student experience. Each Faculty may provide additional, Faculty- or program-specific supports. In addition to the outlined services below, students may also take advantage of the Campus Bookstore, Housing and Living Resources as well as the Ontario Tech Student Union. Further information can be found at: http://studentlife.ontariotechu.ca/.

Student Learning Centre

Ontario Tech University fosters a high level of academic excellence by working with students, undergraduate and graduate, to achieve educational success. Faculty specific academic resources are available online and include tip sheets and videos. Academic specialists offer one-on-one support services in mathematics, writing, study skills, ESL and physics. With the additional support of peer tutors and workshops, the Student Learning Centre can also accommodate the needs of a specific course or program.

Student Accessibility Services

Ontario Tech University ensures that students with disabilities have equal opportunities for academic success. Student Accessibility Services operates under the

Ontario Human Rights Code and the Accessibility for Ontarians with Disabilities Act. Services and accommodation support are provided for students with documented disabilities and include:

- Adaptive technology training
- Alternate format course material
- Learning skills support
- Testing support
- Transition support for incoming students

Student Accessibility Services also provides inclusive peer spaces, support groups, and skills workshops for students.

Career Readiness

Ontario Tech University offers comprehensive career service assistance, co-op and internship support and a variety of valuable resources to help students along their career paths, including:

- Assistance with creating effective job-search documents
- Career counselling
- Co-op and internships
- Interview preparation
- Job market information
- Job search strategies

The Career Centre hosts a variety of events during the academic year including employer information and networking sessions, job fairs and interviews conducted by leading employers.

Student Engagement, Equity and Inclusion, and ***Indigenous Education and Cultural Services***

The university supports students' successful transition and provides opportunities to develop leadership and professional skills throughout their university career. Services provided include:

- Equity and inclusivity programming and support groups
- Indigenous Education and Cultural Services provides space and supports for students to connect with Indigenous culture and resources
- Opportunities to grow and develop leadership skills through the Ambassador and Peer Mentorship program
- Orientation and events through first year
- Peer mentoring
- Services and supports for international and exchange students

- Specialized programming for first-generation, graduate, Indigenous, international, mature, online, transfer and diploma-to-degree pathways students

Student Mental Health Services

Student Mental Health Services helps students learn how to better manage the pressures of student life. Students can:

- Access short term counselling and therapy services
- Access tools and resources online to learn about mental health and how to maintain good health and wellness
- Attend drop-in sessions
- Participate in events, activities or support groups that promote positive health and well-being
- Work with a mental health professional to address concerns

Students in distress will also be provided with support and counselling as needed. There is no cost to students and services are confidential. For those who need long-term counselling support or specialized mental health services, Ontario Tech University will provide referrals to assist the student in accessing resources in the local community or in the student's home community.

Athletics and Recreation Facilities

Ontario Tech University offers a number of recreation facilities and fitness opportunities to meet all lifestyles and needs. On-campus facilities include the state-of-the-art FLEX Fitness Centre which overlooks Oshawa Creek, five gymnasiums, a 200-metre indoor track, two aerobic/dance studios, the Campus Ice Centre, Campus Fieldhouse, a soccer pitch, a fastball diamond, squash courts and an indoor golf training centre. Students are able to participate in varsity and intramural sports as well as group fitness classes and personal training sessions.

Campus Health Centre

The Campus Health Centre provides assistance in numerous confidential health-care options including:

- A medical clinic with daily access to physician and nursing staff
- Treatment of disease, illness, and injury
- Allergy injections, immunizations, and influenza injections
- Complementary Health Services featuring acupuncture, chiropractic, custom orthotics, massage therapy, nutritional counselling, and physical therapy
- An on-site laboratory (blood work, STI testing, throat swabs, etc.)
- Gynaecological health-care and prescriptions

Student Awards and Financial Aid

Student Awards and Financial Aid (SAFA) is dedicated to helping students understand the variety of options available to finance their education. Budgeting and financial planning are essential to their success and SAFA is on hand to help create the right financial plan. Financial assistance can be in the form of bursaries, employment (both on-campus and off), parental resources, scholarships, student lines of credit and the Ontario Student Assistance Program (OSAP).

Teaching & Learning Centre

The mission of the Teaching and Learning Centre (TLC) at Ontario Tech University is to empower faculty to reach their potential as educators and to create a culture where effective teaching is valued. We champion the scholarship of teaching and implementation of pedagogy. We create valuable teaching and learning professional development experiences. We move Ontario Tech University towards being a leader in teaching excellence, ultimately leading to greater student success.

The TLC provides faculty with a range of tools and facilities to assist them in providing a rich learning experience for students. Experts at the TLC provide support in various areas including curriculum development, multimedia design, learning technology and in the overall improvement of teaching practice.

In addition, the TLC funds teaching-related projects from the Teaching Innovation Fund (TIF) for proposals by faculty members aimed at developing new methods in teaching and learning. The TLC facilitates teaching awards at the University and supports faculty in their application for external awards and funding opportunities that focus on teaching and learning.

Campus Libraries

The Campus Libraries support teaching, learning, and research at Ontario Tech University with facilities, collections, and programming.

Library Collections:

- The Library's total collections budget is $1.7 million.
- Collections include books, e-books, databases, journals, data and statistics, and multimedia materials

Support for teaching and learning:

- A dedicated librarian for each program who provides instruction, research consultations, and collection development
- Research guides for each of Ontario Tech's programs, as well as general guides for citation, copyright, and other broad topics
- Workshops and classes: custom in-class sessions, and general instruction sessions

- Three (3) online modules in Ontario Tech's learning management system, which professors can integrate seamlessly into their course shells

Research supports:

- Research consultations with subject librarians
- Extended support via the Library's virtual reference service
- Support for generative artificial intelligence: citation, copyright, and allowable use of library resources

Scholarly publishing supports:

- Research data management
- Publishing compliance with Tri-Council and other funders
- Support finding and creating open educational resources (OERs)
- Copyright advice and compliance information
- Support for authors, including reviewing author agreements
- Administration of APC waivers for faculty publishing in open access

Facilities:

- The Campus Libraries include the North Oshawa Library, which is the campus' main branch, and the Social Sciences, Humanities, and Education Library, which is located in downtown Oshawa
- The Library's locations include:
    - Extended library hours are available during peak season
    - Groups study rooms are available for student booking
    - Accessible workstations, and sit-stand desks
    - Computers and dual monitor workstations

Information Technology Resources

Ontario Tech University is a leader among North American universities in implementing and using curriculum and industry specific software in a technology-enriched learning environment (TELE). Our unique environment is adapted to each discipline based on faculty requirements and input for optimal student learning. We are committed to providing the greatest value for students' investment in education and technology while studying at Ontario Tech University.

One of the greatest advantages of Ontario Tech University's approach to TELE is that all students have equal access to the same technology, resources and services. Whether you are inside or outside of the classroom, your course-specific software allows you to work on your own or with others and enjoy seamless access to all Ontario Tech online resources. TELE supports Bring-your-own-device (BYOD) which provides you with laptop standards when acquiring the right laptop for your program and software support services onsite and online. An annual fee for TELE covers a wide range of program-specific software, technical software support, exam support and virus protection.

IT Services strives to provide quality services to students at Ontario Tech. To support these objectives, the following components are included:

Wireless network
Wireless internet connection is available in public areas and open-air locations around the Ontario Tech campus where students congregate (North Oshawa and Downtown locations).

Wired network
To ensure the success of the technology-enriched learning environment, a comprehensive data network has been installed on campus. This includes network drops in lecture halls and designated areas as well as network drops for each residence suite.

Ontario Tech students benefit from networked classrooms and learning spaces. Each ergonomically-designed space has data network connection access and electrical connections to ensure battery regeneration. In addition, classrooms include electronic projection equipment and full multimedia support.

Exam support services
IT Services provide hardware, software and technical support during examinations. IT team will be equipped with loaner laptops in the event of major technical issues.

Laptop repairs
IT Services provide on campus repairs on eligible laptop models.

IT Service Desk

The IT Service Desk is equipped with certified technicians and experienced IT professionals offering technical support services on a drop-in, call-in or email basis.

General Use Workstations (GUWs)
Ontario Tech undergraduate students are able to use general workstations available at the library and have access to Bring Your Own Device Technology-Enriched Learning Environment (BYOD TELE) model course-specific software.

Software Support
Software Support specialists are available to students on-site and online to assist in downloading/installing University software and support any other software related issues.

Printing services
Printing services are available to students in the following areas: labs, classrooms, study common areas, the Learning Commons and the Library. All Ontario Tech students receive print credits every year, more Printpacks can be purchased through the Campus Bookstore if students require additional printing services.

GRADUATE STUDIES COMMITTEE REPORT

SESSION:		**ACTION REQUESTED:**	
Public	☒	**Decision**	☒
Non-Public	☐	**Discussion/Direction**	☐
		Information	☐
Financial Impact	☐ **Yes** ☒ **No**	**Included in Budget**	☐ **Yes** ☒ **No**

DATE: **June 23, 2026**

FROM: **School of Graduate and Postdoctoral Studies**

PRESENTED BY: **Mehdi Hossein-Nejad, SGPS Associate Dean**

SUBJECT: **Cotutelle Policy and Procedures Amendments**

COMMITTEE MANDATE:
Under the Policy Framework, Academic Council is responsible for approving academic policies following a consultation period and submission to the deliberative body. As an Academic Council committee, Graduate Studies Committee (GSC) is the deliberative body on academic policy instruments related to graduate studies.

In accordance with the GSC Terms of Reference, GSC is responsible to "establish, oversee, and periodically review the graduate academic, admissions, and scholarship procedures, guidelines, and directives; and revise when appropriate; and provide regular updates to Academic Council."

The amendments to the Cotutelle Policy and Procedures are thus presented for GSC's review and approval respectively.

MOTIONS FOR CONSIDERATION:

1. *That GSC hereby recommends to Academic Council the approval of the updated Cotutelle Policy.*

2. *That GSC hereby approves the updated Cotutelle Procedures.*

BACKGROUND/CONTEXT & RATIONALE:
As part of its mandate, SGPS conducts a cyclical review of graduate academic policies owned by the SGPS Dean, including the Cotutelle Policy.

A Cotutelle is a co-enrolment and exchange agreement between two universities. This enables graduate students, most commonly doctoral candidates, to gain diverse research experience while earning degrees from both institutions simultaneously.

The Cotutelle Policy and Procedures have not had a substantive update since their inception in 2016. In the intervening period, interest in Cotutelles has increased. The University's involvement in such arrangements has highlighted several opportunities to more effectively formalize and clarify the Cotutelle process. As graduate enrollment continues to grow, SGPS is receiving a larger volume of inquiries regarding Cotutelle arrangements, including questions about their applicability for research-based Master's students. This has further informed and emphasized the need for substantial revisions to the relevant policy items.

Changes have been made to expand the applicability of Cotutelle arrangements to research-based Master's students, establish a framework for multi-student institutional agreements, and better align operationalization with other relevant policies and processes. Further editorial changes have been made to improve organization, clarity, and consistency in terminology.

SUMMARY OF CHANGES:

Substantive Changes

- ❖ Cotutelle Policy
- ❖ Cotutelle Procedures
- Extend eligibility for Cotutelle arrangements to include research-based Master's programs
- Introduce a framework for institutional-level Cotutelle agreements covering multiple students (in addition to existing procedures for individual agreements)
- Refine requirements and procedural details to improve alignment with other policies (e.g., thesis-related policies) and operational needs

Editorial Changes

- ❖ Cotutelle Policy
- ❖ Cotutelle Procedures
- Improve clarity and consistency in the definition and use of terms for Home, Host, and Partner Institutions
- Minor structural adjustments to improve organization
- Wording adjustments to improve flow
- Ensure use of gender-neutral language throughout
- General proofreading edits
- Updates to web links regarding UHIP and ancillary fees

CONSULTATION AND APPROVAL PATH:

- ✓ Colleagues' Exchange consultation: February 2026
- ✓ Online consultation: May 8–22, 2026
- Policy:
  - ➢ Graduate Studies Committee (deliberation): June 23, 2026
  - ○ Academic Council (approval): June 23, 2026
- Procedures:
  - ➢ Graduate Studies Committee (approval): June 23, 2026
  - ○ Academic Council (information): June 23, 2026

NEXT STEPS:

Pending approval, these amendments will become effective as of the date they are approved.

SUPPORTING REFERENCE MATERIALS:

- ACD 1505 Cotutelle Policy (changes tracked)
- ACD 1505 Cotutelle Policy (clean copy)
- ACD 1505.01 Cotutelle Procedures (changes tracked)
- ACD 1505.01 Cotutelle Procedures (clean copy)

Cotutelle Policy

Classification number	ACD 1505
Framework category	Academic
Approving authority	Academic Council
Policy owner	Dean, School of Graduate and Postdoctoral Studies
Approval date	April 19, 2016
Review date	April 2019
Last updated	TBD
Supersedes	~~Editorial Amendments, February 18, 2020~~ Editorial Amendment, October 14, 2025

Purpose

1. ~~The purpose of the Cotutelle Policy is to enrich the research experience of doctoral candidates and encourage increased international research collaboration, thus enhancing the University's international profile and reputation.~~The purpose of this Policy is to establish a framework governing Cotutelle agreements between Ontario Tech University and Partner Institutions. Cotutelle agreements often support international research collaborations and enrich graduate students' research experience by enabling joint supervision and research training at two institutions. Such arrangements also enhance the University's international profile and reputation.

Definitions

2. For the purposes of this Policy the following definitions apply:

   "Cotutelle" means a bilateral ~~doctoral~~ graduate enrolment/co-enrolment and exchange agreement between two universities ~~(Home Institution and Partnership Institution)~~, normally in different countries (the Home Institution and the Host Institution). Cotutelle arrangements are predominantly offered at the doctoral level; regardless of degree level, the value of the arrangement to a student's research and/or other relevant academic or professional development must be justified.

   "Home Institution" means the university in which the graduate student is enrolled ~~in~~.

   "~~Partnership~~ Host Institution" means the university ~~in~~ which the graduate student will work with~~,~~ to gain ~~international~~ external research experience.

"Individual Cotutelle Agreement" means an agreement establishing the academic, administrative, and financial terms under which an individual student may participate in a Cotutelle between the University and a Partner Institution.

"Institutional Cotutelle Framework Agreement" means an agreement establishing the general academic, administrative, and financial terms under which multiple eligible students may participate in a Cotutelle between the University and a Partner Institution.

"Partner Institution" means the university that Ontario Tech is working with for any given Cotutelle agreement.

"Research-based Master's" means a Master's-level graduate program in which students must write and defend a research thesis as part of the degree requirements.

Scope and authority

3. This Policy applies to ~~doctoral~~ doctoral and Research-based Master's students enrolled at the University or a Partner Institution, and Faculties or programs ~~who are~~ interested in participating.

4. The Dean~~, School~~ of Graduate and ~~Post Doctoral~~Postdoctoral Studies, or successor thereof, is the Policy Owner and is responsible for overseeing the implementation, administration, and interpretation of this Policy.

Policy

~~A~~ Cotutelle is ~~a~~ derived from a French word ~~that means~~ meaning "joint supervision". ~~-~~The term ~~now~~ refers to a ~~bilateral doctoral~~ graduate enrolment~~/co-enrolment~~ and exchange agreement between two universities ~~(the home university and the partner university)~~, normally in different countries.

5. Eligibility and Establishment

5.1. Any ~~full time~~full-time student registered in a ~~Ph.D.~~doctoral or Research-based Master's program at ~~the University is eligible for a Cotutelle agreement.~~either institution is eligible for a Cotutelle agreement given sufficient evidence of its value to their research and/or other relevant academic or professional development. Such arrangements are subject to the approvals listed in section 5.5 of this Policy.

5.2. A Cotutelle agreement may be established at the University under the following circumstances:

a. An existing collaboration between faculty members at both institutions as evidenced by joint publications, previous co-supervision/exchange of students, co-organization of scholarly conferences, etc.;

b. ~~An interest of~~Interest from a currently enrolled doctoral or Research-based Master's ~~Ph.D.~~ student ~~to conduct research abroad at an institution with expertise in his/her research field;~~, normally in the first year of their program;

~~b.~~c. Interest from appropriate academic and administrative representatives at both institutions to establish an Institutional Cotutelle Framework Agreement, given evidence of appropriate academic value and student interest.

~~c. A doctoral student normally within the first year of the PhD program.~~

5.3. When Ontario Tech is the Home Institution, an Individual Cotutelle Agreement~~A Cotutelle agreement~~ should be initiated jointly by an individual Ontario Tech ~~University~~ student and supervising Ontario Tech ~~University~~ faculty member(s). Both must consult with the appropriate Graduate Program Director and Dean of the Faculty to be involved in the Cotutelle. A ~~proposal~~ draft of the Cotutelle file must be submitted ~~to the Ontario Tech University School of Graduate and Postdoctoral Studies~~for approval according to the Cotutelle Procedures.

5.4. When Ontario Tech is the Host Institution, it is expected that the Home (Partner) Institution will initiate any Individual Cotutelle Agreement and will have a similar policy or framework governing such arrangements under which the agreement will be considered.~~Cotutelle agreements initiated by a Partner Institution will be considered under the guidelines established by the home university.~~ In such cases, the Home Institution must submit a draft of the Cotutelle file for Ontario Tech approval according to the Cotutelle Procedures.~~a proposal must be submitted to Ontario Tech University School of Graduate and Postdoctoral Studies. It is expected that Partner Institutions will have similar Cotutelle policies to Ontario Tech University's, leading to the same Cotutelle Agreement Form. In some cases, an alternate Cotutelle Agreement Form may be employed upon approval of the Ontario Tech University School of Graduate and Postdoctoral Studies and of the Partner Institution.~~

5.5. All Individual Cotutelle Agreements must be approved by the student and the following parties or their equivalents from both institutions: thesis supervisors, Graduate Program Directors (if applicable), Faculty Deans (if applicable), Deans of Graduate and Postdoctoral Studies, and any additional authorities required by the Partner Institution.

5.6. The Ontario Tech Dean of Graduate and Postdoctoral Studies, Faculty Dean(s), and Graduate Program Director(s) for involved program(s) (if applicable), together with their counterparts at a Partner Institution, may approve an Institutional Cotutelle Framework Agreement between the University and the Partner Institution. Such a framework will establish the general academic, administrative, and financial terms permitting multiple students to participate in Cotutelle arrangements without requiring full individual approval for each case.

5.7. When an Institutional Cotutelle Framework Agreement exists, student participation may proceed under the approved framework and process established in the Cotutelle Procedures.

6. Language of Instruction

6.1. Instruction shall normally be in English. The student must be able to meet the language proficiency requirements of both institutions.~~both Ontario Tech University's English language proficiency requirements and the language proficiency requirement of the Partner Institution~~

7. Fulfilling Program Requirements

7.1. Students participating in a Cotutelle must fulfill the ~~Ph.D. program requirements~~graduate program requirements at both institutions. This will occur through a transfer of credit~~, where appropriate, where courses taken at~~ between the Home Institution ~~can be applied to the host institution~~and Host Institution ~~and~~ (or vice-versa) in a manner where the requirements of both institutions can be met within the standard program length.~~regular period of study.~~

8. Conferral of Degree

8.1. Upon completion of all degree requirements, the student~~s~~ will receive ~~a diploma~~the appropriate graduate degree from each ~~university~~institution, with each parchment carrying a notation to the effect that the degree was obtained through a Cotutelle agreement. In addition, a notation will be made on the student's~~'~~ transcript that indicates they have participated in a Cotutelle agreement between the two institutions. The names of both participating institutions will be indicated on each ~~diploma~~ graduate degree and on the transcript.

9. Fee Structure and Funding Arrangement

9.1. A goal in seeking Cotutelle agreements with universities abroad is to ensure good reciprocity in the exchange of students. To this end, ~~doctoral~~ graduate students participating in a Cotutelle agreement will be required to pay all tuition fees to ~~his/her home university~~their Home Institution. ~~-~~While at the ~~partnership university~~Host Institution, students will pay the ~~partnership university's~~Host Institution's ancillary and supplementary fees. They will not normally be required to make tuition payments to the ~~Partner~~ Host Institution. ~~Participating students are responsible for paying any immigration fees associated with a Cotutelle mode of study.~~

9.2. ~~It is anticipated that Ontario Tech University students who qualify for a Cotutelle agreement will be of superior academic quality.~~ Travel, accommodation, health ~~-~~care, and other living expenses will be the responsibility of the student. The student is also responsible for paying any applicable immigration fees. The Home Institution is ~~nonetheless~~ responsible for ensuring that students ~~do have sufficient funds to~~are aware of all potential expenses in advance of the approval of any agreement.~~ pursue studies abroad.~~

~~9.2.~~9.3. Any additional or alternative financial commitments or arrangements must arise from the mutual agreement of both institutions and be clearly indicated in the Cotutelle agreement.

~~9.3. External funding programs that support student mobility, such as those provided by government agencies, will be taken advantage of where possible for the benefit of the student.~~

9.4. ~~Students for whom~~When Ontario Tech University is the Home Institution

a. Students will retain all scholarships and endowed awards administered by ~~Ontario Tech~~the University, subject to the conditions of such awards.

b. Students holding external awards are subject to the conditions set out by the governing agency of the award and ~~will~~ need to be aware of these conditions prior to engaging in a Cotutelle agreement.

c. Since a purpose of a Cotutelle agreement is to further joint research, it is expected that ~~Ontario Tech University~~ faculty members will honor graduate research assistantship stipends while students are at the Partner (Host) Institution.

9.5. ~~Students for whom~~When Ontario Tech University is ~~not the Home Institution~~the Host Institution

a. In the spirit of reciprocity with the above, it is expected that the Home Institution will normally continue existing financial support for students hosted at Ontario Tech University.~~Since Ontario Tech University intends to maintain its level of financial support for students who travel to a Partner Institution under a Cotutelle agreement, it is anticipated that the Partner Institution will reciprocate in maintaining a similar level of financial support for its own students while they are at Ontario Tech University. Students coming to Ontario Tech University from a Partner Institution will be eligible to receive a graduate research assistantship from the Ontario Tech University supervisor if the faculty member is so disposed.~~

b. ~~Partner Institution s~~Students will not normally be offered any graduate research assistantships, teaching assistantships or external funding while they are at Ontario Tech University. Any offers of funding support will be at the discretion of the Ontario Tech ~~University~~ supervisor.

c. Partner Institution students are responsible for paying ancillary fees and the University Health Insurance Plan (UHIP) fees. These costs will be updated annually and can be found on the Office of the Registrar website under “Fees and payment”.~~the following fees:University Health Insurance Plan (UHIP)~~

- ~~University Health Insurance Plan (UHIP)~~
- ~~Athletic Centre Levy~~
- ~~Student Organization fee~~
- ~~UPASS (bus transportation)~~

~~These costs will be updated annually and can be found on the gradstudies.ontariotechu.ca website.~~

10. Health Insurance Coverage

10.1. When Ontario Tech is the Home Institution, students travelling abroad will be required to obtain adequate health insurance coverage as required by the Host Institution.

~~10.1.~~10.2. ~~Students coming to Ontario Tech University will be required to enroll, within 30 days of arrival, in the University Health Insurance Plan (UHIP) at their own expense to ensure adequate healthcare insurance while in Canada. Information can be obtained through the UHIP web site at www.uhip.ca or by contacting the International Office. Likewise, Ontario Tech University students travelling abroad will be required to obtain adequate health insurance coverage as required by the host institution.~~When Ontario Tech University is the Host Institution, students will be enrolled in the University Health Insurance Plan (UHIP) and are responsible for the associated fees to ensure adequate healthcare coverage while in Canada. Information can be obtained through the UHIP website or by contacting the International Office.

11. Thesis Evaluation

11.1. Participating Cotutelle students will be required to write a single thesis which will lead to a single oral defence at the Home Institution. The language of the thesis will be in English. ~~The board of examiners will be composed of examiners appointed equally by both institutions and will include at least two professors from each institution and an external examiner who is independent of both institutions.~~ A written evaluation of the thesis must be submitted by ~~all board members~~the examiner(s) prior to the oral defence. All regulations and procedures ~~that will govern~~governing the oral defence will be specific to the Home Institution, unless stated otherwise in the Cotutelle agreement ~~where the defence is conducted~~.

11.2. Normally, the examining committee will be composed of examiners appointed by both institutions. For doctoral students, the external examiner(s) will be independent of both institutions. The size of the examining committee should be kept to the minimum needed to achieve policy compliance.

~~11.2. In the case of~~When Ontario Tech University ~~as~~ is the Home Institution, the ~~Dean of Graduate Studies will appoint the~~examining committee shall be appointed in accordance with the Thesis Oral Examination for Master's and Doctoral Candidates Policy. ~~defence examination board to comprise as a minimum:~~

~~a. One member from outside either university who is a recognized scholar or authority in the subject of the thesis (external examiner);~~

~~b. Thesis supervisor from the Home Institution;~~

~~c. Thesis supervisor from the host institution;~~

d. Faculty member from the Home Institution in the program where the research is conducted;

e. Faculty member from the host institution in the program where the research is conducted;

f.a. One member who is from a separate program at Ontario Tech University and who has been at arm's length from the thesis research (University Examiner).

11.3. In the case where Ontario Tech University is the Partner InstitutionWhen Ontario Tech University is the Host Institution, the defence examination boardexamining committee will consist of similar examiners as mentioned abovehave a similar composition.However, flexibility will be required to meet the needs of the Home Institution. Regardless, the committee will ensure balance from both institutions. Exact committee membership will be decided by mutual agreement between both institutions and is to be specified in the Cotutelle agreement.

11.4. Where possibleNormally, participation in thesis defences will occur by telephone, video conferencing or similar mediaremotely. Where this is not possible or desirable, and costs are incurred in faculty travel and accommodation, payment of such costs will be subject to negotiations conducted by the two supervisors. with the The resulting agreement is to be recorded in a dedicated document drafted specifically for this purpose and signed by the responsible officers at the two universitiesboth institutions (at Ontario Tech University, the Dean of Graduate and Postdoctoral Studies),

12. Academic IntegrityConduct and Policy Compliance

12.1. All students participating in Cotutelle agreements must follow the rules and regulations, including those relating to research ethics, academic integrity, and intellectual property, of both participating universitiesinstitutions. Ontario Tech University is committed to ensuring that all students conduct themselves in a manner consistent with the university's University's academic integrity policies. Recognizing that regulations and practices relating to academic integrity and intellectual property, as well as the culture related to theirof enforcement, can vary substantially from place to place, all graduate students are required to review, comprehend, and adhere to Ontario Tech University's policies upon commencing a Cotutelle agreement and upon submitting Ph.D. theses.

12.2. In the event of contradictory regulations between the home and Partner InstitutionHome Institution and the Host Institution, the Home Institution's regulations shall prevail. Should conflicts arise, the Deans of Graduate and Postdoctoral Studies (or equivalents) shall determine a collective solution.

Monitoring and review

13. This Policy will be reviewed as necessary and at least every three years. The Dean, School of Graduate and Post DoctoralPostdoctoral Studies, or successor thereof, is responsible to monitor and review this Policy.

Relevant legislation

14. This section intentionally left blank.

Related policies, procedures & documents

15. Cotutelle Procedures

    Cotutelle Agreement Template

    Thesis Oral Examination for Master's and Doctoral Candidates Policy

    Intellectual Property Policy

    Responsible Conduct of Research and Scholarship Policy

Cotutelle Policy

Classification number	ACD 1505
Framework category	Academic
Approving authority	Academic Council
Policy owner	Dean, School of Graduate and Postdoctoral Studies
Approval date	April 19, 2016
Review date	April 2019
Last updated	TBD
Supersedes	Editorial Amendment, October 14, 2025

Purpose

1. The purpose of this Policy is to establish a framework governing Cotutelle agreements between Ontario Tech University and Partner Institutions. Cotutelle agreements often support international research collaborations and enrich graduate students' research experience by enabling joint supervision and research training at two institutions. Such arrangements also enhance the University's international profile and reputation.

Definitions

2. For the purposes of this Policy the following definitions apply:

   "Cotutelle" means a bilateral graduate enrolment/co-enrolment and exchange agreement between two universities, normally in different countries (the Home Institution and the Host Institution). Cotutelle arrangements are predominantly offered at the doctoral level; regardless of degree level, the value of the arrangement to a student's research and/or other relevant academic or professional development must be justified.

   "Home Institution" means the university in which the graduate student is enrolled.

   "Host Institution" means the university which the graduate student will work with to gain external research experience.

   "Individual Cotutelle Agreement" means an agreement establishing the academic, administrative, and financial terms under which an individual student may participate in a Cotutelle between the University and a Partner Institution.

"Institutional Cotutelle Framework Agreement" means an agreement establishing the general academic, administrative, and financial terms under which multiple eligible students may participate in a Cotutelle between the University and a Partner Institution.

"Partner Institution" means the university that Ontario Tech is working with for any given Cotutelle agreement.

"Research-based Master's" means a Master's-level graduate program in which students must write and defend a research thesis as part of the degree requirements.

Scope and authority

3. This Policy applies to doctoral and Research-based Master's students enrolled at the University or a Partner Institution, and Faculties or programs interested in participating.

4. The Dean of Graduate and Postdoctoral Studies, or successor thereof, is the Policy Owner and is responsible for overseeing the implementation, administration, and interpretation of this Policy.

Policy

Cotutelle is derived from a French word meaning "joint supervision". The term refers to a graduate enrolment and exchange agreement between two universities, normally in different countries.

5. Eligibility and Establishment

5.1. Any full-time student registered in a doctoral or Research-based Master's program at either institution is eligible for a Cotutelle agreement given sufficient evidence of its value to their research and/or other relevant academic or professional development. Such arrangements are subject to the approvals listed in section 5.5 of this Policy.

5.2. A Cotutelle agreement may be established at the University under the following circumstances:

a. An existing collaboration between faculty members at both institutions as evidenced by joint publications, previous co-supervision/exchange of students, co-organization of scholarly conferences, etc.;

b. Interest from a currently enrolled doctoral or Research-based Master's student, normally in the first year of their program;

c. Interest from appropriate academic and administrative representatives at both institutions to establish an Institutional Cotutelle Framework Agreement, given evidence of appropriate academic value and student interest.

5.3. When Ontario Tech is the Home Institution, an Individual Cotutelle Agreement should be initiated jointly by an individual Ontario Tech student and supervising Ontario Tech faculty member(s). Both must consult with the appropriate Graduate Program Director

and Dean of the Faculty to be involved in the Cotutelle. A draft of the Cotutelle file must be submitted for approval according to the Cotutelle Procedures.

5.4. When Ontario Tech is the Host Institution, it is expected that the Home (Partner) Institution will initiate any Individual Cotutelle Agreement and will have a similar policy or framework governing such arrangements under which the agreement will be considered. In such cases, the Home Institution must submit a draft of the Cotutelle file for Ontario Tech approval according to the Cotutelle Procedures.

5.5. All Individual Cotutelle Agreements must be approved by the student and the following parties or their equivalents from both institutions: thesis supervisors, Graduate Program Directors (if applicable), Faculty Deans (if applicable), Deans of Graduate and Postdoctoral Studies, and any additional authorities required by the Partner Institution.

5.6. The Ontario Tech Dean of Graduate and Postdoctoral Studies, Faculty Dean(s), and Graduate Program Director(s) for involved program(s) (if applicable), together with their counterparts at a Partner Institution, may approve an Institutional Cotutelle Framework Agreement between the University and the Partner Institution. Such a framework will establish the general academic, administrative, and financial terms permitting multiple students to participate in Cotutelle arrangements without requiring full individual approval for each case.

5.7. When an Institutional Cotutelle Framework Agreement exists, student participation may proceed under the approved framework and process established in the Cotutelle Procedures.

6. Language of Instruction

6.1. Instruction shall normally be in English. The student must be able to meet the language proficiency requirements of both institutions.

7. Fulfilling Program Requirements

7.1. Students participating in a Cotutelle must fulfill the graduate program requirements at both institutions. This will occur through a transfer of credit between the Home Institution and Host Institution (or vice-versa) in a manner where the requirements of both institutions can be met within the standard program length.

8. Conferral of Degree

8.1. Upon completion of all degree requirements, the student will receive the appropriate graduate degree from each institution, with each parchment carrying a notation to the effect that the degree was obtained through a Cotutelle agreement. In addition, a notation will be made on the student's transcript that indicates they have participated in a Cotutelle agreement between the two institutions. The names of both participating institutions will be indicated on each graduate degree and on the transcript.

9. Fee Structure and Funding Arrangement

9.1. A goal in seeking Cotutelle agreements with universities abroad is to ensure good reciprocity in the exchange of students. To this end, graduate students participating in a Cotutelle agreement will be required to pay all tuition fees to their Home Institution. While at the Host Institution, students will pay the Host Institution's ancillary and supplementary fees. They will not normally be required to make tuition payments to the Host Institution.

9.2. Travel, accommodation, healthcare, and other living expenses will be the responsibility of the student. The student is also responsible for paying any applicable immigration fees. The Home Institution is responsible for ensuring that students are aware of all potential expenses in advance of the approval of any agreement.

9.3. Any additional or alternative financial commitments or arrangements must arise from the mutual agreement of both institutions and be clearly indicated in the Cotutelle agreement.

9.4. When Ontario Tech University is the Home Institution

a. Students will retain all scholarships and endowed awards administered by the University, subject to the conditions of such awards.

b. Students holding external awards are subject to the conditions set out by the governing agency of the award and need to be aware of these conditions prior to engaging in a Cotutelle agreement.

c. Since a purpose of a Cotutelle agreement is to further joint research, it is expected that faculty members will honor graduate research assistantship stipends while students are at the Partner (Host) Institution.

9.5. When Ontario Tech University is the Host Institution

a. In the spirit of reciprocity with the above, it is expected that the Home Institution will normally continue existing financial support for students hosted at Ontario Tech University.

b. Students will not normally be offered any graduate research assistantships, teaching assistantships or external funding while they are at Ontario Tech University. Any offers of funding support will be at the discretion of the Ontario Tech supervisor.

c. Partner Institution students are responsible for paying ancillary fees and the University Health Insurance Plan (UHIP) fees. These costs will be updated annually and can be found on the Office of the Registrar website under "Fees and payment".

10. Health Insurance Coverage

10.1. When Ontario Tech is the Home Institution, students travelling abroad will be required to obtain adequate health insurance coverage as required by the Host Institution.

10.2. When Ontario Tech University is the Host Institution, students will be enrolled in the University Health Insurance Plan (UHIP) and are responsible for the associated fees to ensure adequate healthcare coverage while in Canada. Information can be obtained through the UHIP website or by contacting the International Office.

11. Thesis Evaluation

11.1. Participating Cotutelle students will be required to write a single thesis which will lead to a single oral defence at the Home Institution. The language of the thesis will be in English. A written evaluation of the thesis must be submitted by the examiner(s) prior to the oral defence. All regulations and procedures governing the oral defence will be specific to the Home Institution, unless stated otherwise in the Cotutelle agreement.

11.2. Normally, the examining committee will be composed of examiners appointed by both institutions. For doctoral students, the external examiner(s) will be independent of both institutions. The size of the examining committee should be kept to the minimum needed to achieve policy compliance.

11.3. When Ontario Tech University is the Home Institution, the examining committee shall be appointed in accordance with the Thesis Oral Examination for Master's and Doctoral Candidates Policy.

11.4. When Ontario Tech University is the Host Institution, the examining committee will have a similar composition. Exact committee membership will be decided by mutual agreement between both institutions and is to be specified in the Cotutelle agreement.

11.5. Normally, participation in thesis defences will occur remotely. Where this is not possible or desirable, and costs are incurred in faculty travel and accommodation, payment of such costs will be subject to negotiations conducted by the two supervisors. The resulting agreement is to be recorded in a dedicated document signed by the responsible officers at both institutions (at Ontario Tech University, the Dean of Graduate and Postdoctoral Studies),

12. Academic Conduct and Policy Compliance

12.1. All students participating in Cotutelle agreements must follow the rules and regulations, including those relating to research ethics, academic integrity, and intellectual property, of both participating institutions. Ontario Tech University is committed to ensuring that all students conduct themselves in a manner consistent with the University’s academic integrity policies. Recognizing that regulations and practices, as well as the culture of enforcement, can vary substantially from place to place, all students are required to review, comprehend, and adhere to Ontario Tech University's policies.

12.2. In the event of contradictory regulations between the Home Institution and the Host Institution, the Home Institution's regulations shall prevail. Should conflicts arise, the Deans of Graduate and Postdoctoral Studies (or equivalents) shall determine a collective solution.

Monitoring and review

13. This Policy will be reviewed as necessary and at least every three years. The Dean of Graduate and Postdoctoral Studies, or successor thereof, is responsible to monitor and review this Policy.

Relevant legislation

14. This section intentionally left blank.

Related policies, procedures & documents

15. Cotutelle Procedures

    Cotutelle Agreement Template

    Thesis Oral Examination for Master's and Doctoral Candidates Policy

    Intellectual Property Policy

    Responsible Conduct of Research and Scholarship Policy

Cotutelle Procedures

Classification number	ACD 1505.01
Parent policy	Cotutelle Policy
Framework category	Academic
Approving authority	Academic Council
Policy owner	Dean, School of Graduate and Postdoctoral Studies
Approval date	April 19, 2016
Review date	April 2019
Last updated	TBD
Supersedes	~~Editorial Amendments, February 18, 2020~~ Editorial Amendment, October 14, 2025

Purpose

1. The purpose of these Procedures is to outline the process for developing and administering Cotutelle agreements under the Cotutelle Policy.~~operational details in relation to the Cotutelle Policy.~~

Definitions

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

   "Cotutelle" means a bilateral ~~doctoral~~ graduate enrolment/co-enrolment and exchange agreement between two universities ~~(home institution and partnership institution)~~, normally in different countries (the Home Institution and the Host Institution). Cotutelle arrangements are predominantly offered at the doctoral level; regardless of degree level, the value of the arrangement to a student's research and/or other relevant academic or professional development must be justified.

   "Home Institution" means the university in which the graduate student is enrolled ~~in~~.

   "~~Partnership~~ Host Institution" means the university ~~in~~ which the graduate student will work with to gain ~~international~~ external research experience.

   "Individual Cotutelle Agreement" means an agreement establishing the academic, administrative, and financial terms under which an individual student may participate in a Cotutelle between the University and a Partner Institution.

"Institutional Cotutelle Framework Agreement" means an agreement establishing the general academic, administrative, and financial terms under which multiple eligible students may participate in a Cotutelle between the University and a Partner Institution.

"Partner Institution" means the university that Ontario Tech is working with for any given Cotutelle agreement.

"Research-based Master's" means a Master's-level graduate program in which students must write and defend a research thesis as part of the degree requirements.

Scope and authority

3. These Procedures apply to ~~Home and Partnership doctoral students, staff and Faculties.~~ doctoral and Research-based Master's students enrolled at the University or a Partner Institution, and Faculties or programs interested in participating.

4. The Dean of Graduate and ~~Post Doctoral~~Postdoctoral Studies, or successor thereof, is the Policy Owner and is responsible for overseeing the implementation, administration, and interpretation of these Procedures.

Procedures

5. ~~Academic Path~~Administration of a Cotutelle Program

5.1. Students participating in a Cotutelle program are admitted and registered as ~~full timestudents~~full-time students in both participating institutions simultaneously.

5.2. ~~However~~Normally, the student will only pay tuition fees to ~~his/her~~the Home Institution.~~, as defined above.~~

~~5.1.~~5.3. Any additional financial commitments or fees must arise from the mutual agreement of both institutions and be clearly indicated in the Cotutelle agreement.

~~5.2.~~5.4. The students' ~~doctoral~~ graduate studies will meet the program requirements of both institutions and are subject to the rules and regulations at both institutions. ~~These students~~Students will carry out their research work under the joint supervision of one or more thesis supervisors from each institution. ~~and the~~ The thesis is defended at the Home Institution.

5.5. Before entering into a Cotutelle agreement, the student and ~~his/her~~their supervisors from ~~the two~~both institutions will determine a detailed study schedule and academic path. This will include the timeline of study periods at both institutions, ~~when study periods will take place at both the home and Partner Institutions and include~~ the time and location of learning activities, and all required courses.

5.6. ~~In every case, the minimum duration of residency at Ontario Tech University is three full time terms for students coming from abroad. For students for whom Ontario Tech~~

~~University is the Home Institution, the total duration of residency at Ontario Tech University is six full-time terms.~~When Ontario Tech University is the Home Institution, the minimum duration of residency at Ontario Tech for doctoral students is six full-time terms. When Ontario Tech University is the Host Institution, the minimum duration of residency at Ontario Tech for doctoral students is three full-time terms.

~~5.3.~~5.7. When Ontario Tech University is the Home Institution, the minimum duration of residency at Ontario Tech for Research-based Master's students is the equivalent of half the standard full-time program length. When Ontario Tech University is the Host Institution, the minimum duration of residency at Ontario Tech for Research-based Master's students is normally two full-time terms.

5.8. ~~Students~~ Normally, students will have ~~normally~~ completed their coursework at the~~ir~~ Home Institution prior to engaging in a Cotutelle agreement. ~~Any additional course~~All required courses, including already completed courses, ~~requirements which need to be met at the Partner Institution~~ must be laid out in the academic path of the Cotutelle agreement.

5.9. ~~For Ontario Tech University students, when~~ For doctoral students, when Ontario Tech University is the Home Institution and the candidacy exam is not completed in advance of engaging in a Cotutelle agreement, it will be administered ~~at the Partner Institution~~ according to the ~~rules of the School of Graduate and Post Doctoral Studies~~Ontario Tech Doctoral Candidacy Examination Policy.

~~5.4.~~5.10. Thesis-based work will occur at both institutions as defined in the Cotutelle agreement.

6. Action to Engage in an Individual Cotutelle Agreement~~a Cotutelle for Students Currently Registered at Ontario Tech University~~

6.1. The student must already be registered in the graduate program at the Home Institution.

6.2. The student ~~registers in the Ph.D. program at Ontario Tech University and~~ approaches ~~his/her~~their thesis supervisor(s) for initial approval ~~of establishing~~to establish a Cotutelle agreement. It is anticipated that an expression of interest between the supervisors at each institution has already taken place. The supervisor or Graduate Program Director (or equivalent) must send a note declaring their intent to the Ontario Tech School of Graduate and Postdoctoral Studies. If approved in principle, the student and supervisor(s) develop a draft of the Cotutelle file ~~as follows~~.

~~6.1.~~6.3. When Ontario Tech University is the Home Institution, the Cotutelle file shall include:

a. ~~The~~ A completed copy of the Cotutelle Agreement ~~Form~~Template;

b. A written summary of the student's research project ~~which must be~~ signed by the thesis supervisors at both institutions;

c. The anticipated academic path for the full program duration, including the sequence of study periods ~~in participating~~ at both institutions and any required courses;

d. A letter from supervisors from both institutions indicating their agreement to supervise the ~~doctoral candidate~~student under the Cotutelle and the value added to the ~~doctoral program~~student's research and/or other relevant academic or professional development;

e. Details on how the student will fund ~~his/her~~their studies at the ~~international institution~~Host Institution;

~~e.~~f. Any additional financial requirements or other administrative considerations;

~~f.~~g. Approval from the Graduate Program Director;

h. Approval from the Faculty Dean;~~.~~

~~g.~~i. Approval from the Dean of Graduate and Postdoctoral Studies.

6.4. When Ontario Tech University is the Host Institution, it is recognized that the Partner (Home) Institution may have a specific process for establishing a Cotutelle agreement. Nonetheless, it is expected that the Cotutelle file will contain items a) through f) listed above in addition to any appropriate approvals from the Partner (Home) Institution.

6.5. ~~The thesis supervisor(s) at Ontario Tech University will forward the Cotutelle file to the Dean of Graduate and Post Doctoral Studies where agreement in principle will be given.~~ Once completed, the Cotutelle file is shared with the appropriate authorities at the Host Institution for review. When Ontario Tech University is the Host Institution, the Cotutelle file is to be reviewed by all Ontario Tech signatories listed in section 6.7 of these Procedures to obtain their agreement in principle.

~~6.2.~~6.6. ~~The student then submits an application through the normal admission process at the Partner Institution and receives an official offer of admission for the chosen Ph.D. program at the Partner Institution. Once admitted, the entire Cotutelle file is considered finalized.~~After the Cotutelle file has been reviewed by the Host Institution, the student applies for admission to the Host Institution.

~~6.3.~~6.7. Once the student is admitted to the Host Institution, the Cotutelle file is considered finalized and the Cotutelle agreement is signed. ~~Official signing of the Cotutelle agreement is then performed.~~ The following signatures must be included:

a. ~~Dean of Graduate and Post Doctoral Studies and Dean of home Faculty;~~Ontario Tech Faculty Dean (and normally their counterpart at the Partner Institution);

b. ~~Appropriate counterparts at the participating institution;~~Dean of Graduate and Postdoctoral Studies or equivalent at both institutions;

c. Ontario Tech Graduate Program Director (and normally their counterpart at the Partner Institution);~~of both doctoral programs;~~

d. Thesis supervisors from both institutions;

e. Student;~~ and~~

f. Any additional signatures as required by the Partner Institution.

~~7. Action to Engage in a Cotutelle for Students Currently Registered at Another University~~

~~7.1. The student registers in the doctoral program at his/her Home Institution and approaches his/her thesis supervisor(s) for initial approval of establishing a Cotutelle agreement. It is anticipated that prior to these actions, an expression of interest between the supervisors at each university has already taken place. If approved, the student develops a draft of the Cotutelle file in consultation with his/her thesis supervisor(s). It is recognized that the Home Institution may have a specific process for establishing a Cotutelle agreement. Regardless, the following should be included in the Cotutelle file for approval from Ontario Tech University:~~

~~a. The Cotutelle Agreement Form (attached) or equivalent;~~

~~b. A written summary of the student's research project which must be signed by thesis supervisors at both institutions;~~

~~c. The anticipated academic path, including sequence of periods in participating institutions;~~

~~d. A letter from supervisors from both institutions indicating their agreement to supervise the doctoral candidate under the Cotutelle and the value added to the doctoral program;~~

~~e. Details on how the student will fund his/her studies at the international institution;~~

~~f. Appropriate approvals from the Home Institution.~~

~~7.2. The thesis supervisor(s) at Ontario Tech University will receive approval of the Cotutelle file from the Graduate Program Director and the Faculty Dean. Once obtained they will forward the Cotutelle file to the Dean of Graduate and Post Doctoral Studies where agreement in principle will be given. The student then submits an application through the normal admission process at Ontario Tech University and receives an official offer of admission for the chosen Ph.D. program at Ontario Tech University. Once admitted, the entire Cotutelle file is considered finalized.~~

~~7.3. Official signing of the Cotutelle agreement is then performed. The following signatures must be included:~~

~~a. Dean of Graduate and Post Doctoral Studies and Dean of home Faculty;~~

~~b. Appropriate counterparts at the participating institution;~~

~~c. Graduate Program Director of both doctoral programs;~~

~~d. Thesis supervisors from both institutions;~~

~~e. Student; and~~

~~f. Any additional signatures as required by the Partner Institution.~~

7. Creation of an Institutional Cotutelle Framework Agreement

7.1. The request to create an Institutional Cotutelle Framework Agreement may be initiated by a Dean or Graduate Program Director (or equivalent) at Ontario Tech University or a Partner Institution.

7.2. It is acknowledged that the exact composition of the agreement will depend on the requirements of both institutions and the relevant program(s). However, at minimum, the agreement should provide for the following:

a. When the agreement is specific to (a) particular graduate program(s), the anticipated academic path for participating students, including course requirements and the sequence of study periods at both institutions;

b. Any required fees or financial obligations;

c. Details regarding the administrative documents and approvals required to engage individual students under the framework agreement (e.g., short-form student participation record);

d. Any additional administrative considerations.

7.3. Further information and details may be requested to justify the existence and structure of the proposed agreement, such as evidence of recurrent student interest.

7.4. Any further consultation with relevant authorities at both institutions (e.g., legal or international units) is to be conducted in advance of finalizing the agreement.

7.5. To finalize the agreement, the following signatures must be included:

a. Dean of Graduate and Postdoctoral Studies or equivalent at both institutions;

b. Ontario Tech Faculty Dean(s) (and normally their counterparts at the Partner Institution) if the agreement is limited to one or more specific Faculties;

c. Ontario Tech Graduate Program Director(s) (and normally their counterparts at the Partner Institution) if the agreement is limited to one or more specific programs;

d. Any additional signatures required by the Partner Institution.

8. Cotutelle Arrangements for Students Covered by an Institutional Cotutelle Framework Agreement

8.1. Eligible students may participate under the framework established in the existing agreement without requiring a full Individual Cotutelle Agreement.

8.2. In such cases, the following is required at minimum:

a. Confirmation of supervision at both institutions;

b. An attestation signed by the Ontario Tech Graduate Program Director confirming the student is and will continue to be in compliance with the conditions of the framework agreement;

c. Details on how the student will fund their studies at the Host Institution;

d. Any documentation and approvals required by the framework agreement.

8.3. A record of all participating students will be shared with the School of Graduate and Postdoctoral Studies.

9. ~~In both cases the officially signed Cotutelle Agreement Form represents the~~Any signed Cotutelle agreement represents a binding contract between all parties involved (student, supervisors, and ~~university~~ administrators) to ensure successful completion of the student's ~~Ph.D.~~ graduate program.

~~8.~~10. It is expected that regular information-sharing takes place with regard to all current Cotutelle agreements (individual and framework agreements). The School of Graduate and Postdoctoral Studies will monitor student numbers, operations, research output, and financial implications. Consequently, changes to agreements or to the number of students allowed under an Institutional Cotutelle Framework Agreement may be implemented accordingly.

Monitoring and review

~~9.~~11. These ~~procedures~~ Procedures will be reviewed as necessary and at least every three years. The Dean of Graduate and ~~Post Doctoral~~Postdoctoral Studies, or successor thereof, is responsible to monitor and review these ~~procedures~~Procedures.

Relevant legislation

~~10.~~12. This section intentionally left blank.

Related policies, procedures & documents

~~11.~~13. Cotutelle Policy

Cotutelle Agreement Template

Intellectual Property Policy

Responsible Conduct of Research and Scholarship Policy

Doctoral Candidacy Examination Policy

Cotutelle Procedures

Classification number	ACD 1505.01
Parent policy	Cotutelle Policy
Framework category	Academic
Approving authority	Academic Council
Policy owner	Dean, School of Graduate and Postdoctoral Studies
Approval date	April 19, 2016
Review date	April 2019
Last updated	TBD
Supersedes	Editorial Amendment, October 14, 2025

Purpose

1. The purpose of these Procedures is to outline the process for developing and administering Cotutelle agreements under the Cotutelle Policy.

Definitions

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

"Cotutelle" means a bilateral graduate enrolment/co-enrolment and exchange agreement between two universities, normally in different countries (the Home Institution and the Host Institution). Cotutelle arrangements are predominantly offered at the doctoral level; regardless of degree level, the value of the arrangement to a student's research and/or other relevant academic or professional development must be justified.

"Home Institution" means the university in which the graduate student is enrolled.

"Host Institution" means the university which the graduate student will work with to gain external research experience.

"Individual Cotutelle Agreement" means an agreement establishing the academic, administrative, and financial terms under which an individual student may participate in a Cotutelle between the University and a Partner Institution.

"Institutional Cotutelle Framework Agreement" means an agreement establishing the general academic, administrative, and financial terms under which multiple eligible students may participate in a Cotutelle between the University and a Partner Institution.

"Partner Institution" means the university that Ontario Tech is working with for any given Cotutelle agreement.

"Research-based Master's" means a Master's-level graduate program in which students must write and defend a research thesis as part of the degree requirements.

Scope and authority

3. These Procedures apply to doctoral and Research-based Master's students enrolled at the University or a Partner Institution, and Faculties or programs interested in participating.

4. The Dean of Graduate and Postdoctoral Studies, or successor thereof, is the Policy Owner and is responsible for overseeing the implementation, administration, and interpretation of these Procedures.

Procedures

5. Administration of a Cotutelle Program

5.1. Students participating in a Cotutelle program are admitted and registered as full-time students in both participating institutions simultaneously.

5.2. Normally, the student will only pay tuition fees to the Home Institution.

5.3. Any additional financial commitments or fees must arise from the mutual agreement of both institutions and be clearly indicated in the Cotutelle agreement.

5.4. The students' graduate studies will meet the program requirements of both institutions and are subject to the rules and regulations at both institutions. Students will carry out their research work under the joint supervision of one or more thesis supervisors from each institution. The thesis is defended at the Home Institution.

5.5. Before entering into a Cotutelle agreement, the student and their supervisors from both institutions will determine a detailed study schedule and academic path. This will include the timeline of study periods at both institutions, the time and location of learning activities, and all required courses.

5.6. When Ontario Tech University is the Home Institution, the minimum duration of residency at Ontario Tech for doctoral students is six full-time terms. When Ontario Tech University is the Host Institution, the minimum duration of residency at Ontario Tech for doctoral students is three full-time terms.

5.7. When Ontario Tech University is the Home Institution, the minimum duration of residency at Ontario Tech for Research-based Master's students is the equivalent of half the standard full-time program length. When Ontario Tech University is the Host Institution, the minimum duration of residency at Ontario Tech for Research-based Master's students is normally two full-time terms.

5.8. Normally, students will have completed their coursework at the Home Institution prior to engaging in a Cotutelle agreement. All required courses, including already completed courses, must be laid out in the academic path of the Cotutelle agreement.

5.9. For doctoral students, when Ontario Tech University is the Home Institution and the candidacy exam is not completed in advance of engaging in a Cotutelle agreement, it will be administered according to the Ontario Tech Doctoral Candidacy Examination Policy.

5.10. Thesis-based work will occur at both institutions as defined in the Cotutelle agreement.

6. Action to Engage in an Individual Cotutelle Agreement

6.1. The student must already be registered in the graduate program at the Home Institution.

6.2. The student approaches their thesis supervisor(s) for initial approval to establish a Cotutelle agreement. It is anticipated that an expression of interest between the supervisors at each institution has already taken place. The supervisor or Graduate Program Director (or equivalent) must send a note declaring their intent to the Ontario Tech School of Graduate and Postdoctoral Studies. If approved in principle, the student and supervisor(s) develop a draft of the Cotutelle file.

6.3. When Ontario Tech University is the Home Institution, the Cotutelle file shall include:

a. A completed copy of the Cotutelle Agreement Template;

b. A written summary of the student's research project signed by the thesis supervisors at both institutions;

c. The anticipated academic path for the full program duration, including the sequence of study periods at both institutions and any required courses;

d. A letter from supervisors from both institutions indicating their agreement to supervise the student under the Cotutelle and the value added to the student's research and/or other relevant academic or professional development;

e. Details on how the student will fund their studies at the Host Institution;

f. Any additional financial requirements or other administrative considerations;

g. Approval from the Graduate Program Director;

h. Approval from the Faculty Dean;

i. Approval from the Dean of Graduate and Postdoctoral Studies.

6.4. When Ontario Tech University is the Host Institution, it is recognized that the Partner (Home) Institution may have a specific process for establishing a Cotutelle agreement.

Nonetheless, it is expected that the Cotutelle file will contain items a) through f) listed above in addition to any appropriate approvals from the Partner (Home) Institution.

6.5. Once completed, the Cotutelle file is shared with the appropriate authorities at the Host Institution for review. When Ontario Tech University is the Host Institution, the Cotutelle file is to be reviewed by all Ontario Tech signatories listed in section 6.7 of these Procedures to obtain their agreement in principle.

6.6. After the Cotutelle file has been reviewed by the Host Institution, the student applies for admission to the Host Institution.

6.7. Once the student is admitted to the Host Institution, the Cotutelle file is considered finalized and the Cotutelle agreement is signed. The following signatures must be included:

a. Ontario Tech Faculty Dean (and normally their counterpart at the Partner Institution);

b. Dean of Graduate and Postdoctoral Studies or equivalent at both institutions;

c. Ontario Tech Graduate Program Director (and normally their counterpart at the Partner Institution);

d. Thesis supervisors from both institutions;

e. Student;

f. Any additional signatures as required by the Partner Institution.

7. Creation of an Institutional Cotutelle Framework Agreement

7.1. The request to create an Institutional Cotutelle Framework Agreement may be initiated by a Dean or Graduate Program Director (or equivalent) at Ontario Tech University or a Partner Institution.

7.2. It is acknowledged that the exact composition of the agreement will depend on the requirements of both institutions and the relevant program(s). However, at minimum, the agreement should provide for the following:

a. When the agreement is specific to (a) particular graduate program(s), the anticipated academic path for participating students, including course requirements and the sequence of study periods at both institutions;

b. Any required fees or financial obligations;

c. Details regarding the administrative documents and approvals required to engage individual students under the framework agreement (e.g., short-form student participation record);

d. Any additional administrative considerations.

7.3. Further information and details may be requested to justify the existence and structure of the proposed agreement, such as evidence of recurrent student interest.

7.4. Any further consultation with relevant authorities at both institutions (e.g., legal or international units) is to be conducted in advance of finalizing the agreement.

7.5. To finalize the agreement, the following signatures must be included:

a. Dean of Graduate and Postdoctoral Studies or equivalent at both institutions;

b. Ontario Tech Faculty Dean(s) (and normally their counterparts at the Partner Institution) if the agreement is limited to one or more specific Faculties;

c. Ontario Tech Graduate Program Director(s) (and normally their counterparts at the Partner Institution) if the agreement is limited to one or more specific programs;

d. Any additional signatures required by the Partner Institution.

8. Cotutelle Arrangements for Students Covered by an Institutional Cotutelle Framework Agreement

8.1. Eligible students may participate under the framework established in the existing agreement without requiring a full Individual Cotutelle Agreement.

8.2. In such cases, the following is required at minimum:

a. Confirmation of supervision at both institutions;

b. An attestation signed by the Ontario Tech Graduate Program Director confirming the student is and will continue to be in compliance with the conditions of the framework agreement;

c. Details on how the student will fund their studies at the Host Institution;

d. Any documentation and approvals required by the framework agreement.

8.3. A record of all participating students will be shared with the School of Graduate and Postdoctoral Studies.

9. Any signed Cotutelle agreement represents a binding contract between all parties involved (student, supervisors, and administrators) to ensure successful completion of the student's graduate program.

10. It is expected that regular information-sharing takes place with regard to all current Cotutelle agreements (individual and framework agreements). The School of Graduate and Postdoctoral Studies will monitor student numbers, operations, research output, and financial implications. Consequently, changes to agreements or to the number of students allowed under an Institutional Cotutelle Framework Agreement may be implemented accordingly.

Monitoring and review

11. These Procedures will be reviewed as necessary and at least every three years. The Dean of Graduate and Postdoctoral Studies, or successor thereof, is responsible to monitor and review these Procedures.

Relevant legislation

12. This section intentionally left blank.

Related policies, procedures & documents

13. Cotutelle Policy

    Cotutelle Agreement Template

    Intellectual Property Policy

    Responsible Conduct of Research and Scholarship Policy

    Doctoral Candidacy Examination Policy

GRADUATE STUDIES COMMITTEE REPORT

SESSION:		**ACTION REQUESTED:**	
Public	☒	**Decision**	☒
Non-Public	☐	**Discussion/Direction**	☐
		Information	☐
Financial Impact	☐ **Yes** ☒ **No**	**Included in Budget**	☐ **Yes** ☒ **No**

DATE: **June 23, 2026**

FROM: **School of Graduate and Postdoctoral Studies (SGPS)**

PRESENTED BY: **Mehdi Hossein-Nejad, SGPS Associate Dean**

SUBJECT: **Graduate Experiential Learning Policy**

COMMITTEE MANDATE:
Under the Policy Framework, Academic Council is responsible for approving academic policies following a consultation period and submission to the deliberative body. As an Academic Council committee, Graduate Studies Committee (GSC) is the deliberative body on academic policy instruments related to graduate studies.

In accordance with the GSC Terms of Reference, GSC is responsible to "establish, oversee, and periodically review the graduate academic, admissions, and scholarship procedures, guidelines, and directives; and revise when appropriate; and provide regular updates to Academic Council."

The following policy draft is thus presented for GSC's review.

MOTION FOR CONSIDERATION:
That GSC hereby recommends to Academic Council the approval of the Graduate Experiential Learning Policy.

BACKGROUND/CONTEXT & RATIONALE:
As part of its role in overseeing graduate education across the University, SGPS is responsible for developing graduate academic policies.

Experiential learning refers to structured activities integrated within an academic program involving the application of disciplinary knowledge and skills in a workplace, research, community, or professional setting. Such activities allow students to apply their learning outside the academic environment, carrying immense value for their course of study and career development.

Recent growth in graduate enrolment, expanded program offerings and diversification, and increased engagement with industry, government, and community partners has increased

opportunities for graduate level experiential learning across the institution. However, we currently lack a dedicated policy instrument to guide experiential learning at the graduate level.

Currently, the University has Directives for Co-Operative Education, Internship and Practicum Development (ACD 1599.06). These directives are not specific, nor applicable, to graduate programs, and do not include other forms of experiential learning such as entrepreneurial activities, industry research projects, and community-engaged learning. The proposed Graduate Experiential Learning Policy will supersede the current directives and provide details on a graduate-specific framework that supports a range of experiential learning models while allowing programs to determine the approaches more appropriate to their disciplinary context. The policy outlines the structure, design, and delivery of experiential learning activities, associated unit responsibilities, and fee structure.

SUMMARY OF PROPOSED POLICY:

- Defines different forms of experiential learning at the graduate level, including community-engaged learning, co-operative education, entrepreneurial activities, industry research projects, internships, practica, and other structured activities.
- Establishes overall academic and structural expectations for graduate experiential learning, such as defined learning outcomes, compliance with related policy instruments, and required agreements.
- Outlines responsibilities in the development of experiential learning activities, including required consultations.
- Outlines the delivery of graduate experiential learning, including considerations for supervision, student responsibilities, and conditions for continued participation.
- Outlines the fee structure associated with graduate experiential learning.

CONSULTATION AND APPROVAL PATH:

- ✓ Dean's Council consultation: May 2026
- ✓ Online consultation: June 1–15, 2026
- ➢ Graduate Studies Committee (deliberation): June 23, 2026
- ○ Academic Council (approval): June 23, 2026

NEXT STEPS:

Pending approval, this policy will become effective as of the date it is approved.

SUPPORTING REFERENCE MATERIALS:

- ACD XXXX Graduate Experiential Learning Policy (draft)

Classification Number	ACD XXXX
Framework Category	Academic
Approving Authority	Academic Council
Policy Owner	Dean, School of Graduate and Postdoctoral Studies
Approval Date	PENDING
Review Date	
Supersedes	

Graduate Experiential Learning Policy

PREAMBLE

Experiential Learning provides an opportunity for students to apply specialized knowledge and skills beyond the academic environment. In addition to its educational value in a rapidly evolving labour market, the implementation of structured Experiential Learning allows the University to better meet the needs of an increasingly diverse collective of graduate students.

The successful development and execution of Experiential Learning at the graduate level is dependent upon:

- Supporting scholarly and professional development and excellence;
- Maintaining academic quality and integrity across Ontario Tech's graduate programs;
- Enabling graduate programs to incorporate structured Experiential Learning opportunities appropriate to their disciplinary context;
- Aligning with nationally and/or provincially recognized best practices in work-integrated learning;
- Maintaining clear roles and division of responsibility among stakeholders including Academic Units and centralized Experiential Learning operations.

PURPOSE

1. The purpose of this Policy is to establish an institutional framework and expectations governing the development, administration, and oversight of Experiential Learning at the graduate level.

DEFINITIONS

2. For the purposes of this Policy the following definitions apply:

"Academic Units" refer to the Faculties and the School of Graduate and Postdoctoral Studies (SGPS).

"Experiential Learning" refers to structured activities integrated within a program that involve the application of disciplinary knowledge and skills in a workplace, research, community, or professional setting.

Experiential Learning includes established learning outcomes, a defined period (e.g., semester, Work Term) or placement, academic supervision, and formal evaluation as part of a program of study. This may occur through a range of structured models, including but not limited to:

a) **"Community-Engaged Learning"**, referring to for-credit applied learning activities within a community that have substantial involvement with individuals or organizations external to the University, such as local non-profit groups;

b) **"Co-operative Education" or "Co-Op"**, referring to arrangements by which one or more paid Work Terms are integrated throughout a student's studies and result in a degree designation upon successful completion of academic and Co-Op program requirements;

c) **"Entrepreneurial Activities"**, referring to for-credit development and/or commercialization of products or services including venture creation and related activities;

d) **"Industry Research Project"**, referring to a for-credit applied research project normally conducted in collaboration with an industry or community partner, including Capstone projects;

e) **"Internship"**, referring to a for-credit work opportunity which may be paid or unpaid;

f) **"Practicum"**, referring to a for-credit part-time and/or short-term intensive experience in a workplace setting which is normally unpaid and typically supervised by an experienced licensed or registered professional;

g) Other structured applied learning experiences as approved by the relevant Academic Units and governance bodies at the University.

"Placement Host" refers to an external organization or internal unit that provides an environment in which a graduate student participates in Experiential Learning.

"Work Term" means a defined period (e.g., semester) of structured Experiential Learning, typically associated with a Co-operative Education component, during which a graduate student engages in a placement with a Placement Host.

Work Terms are paid engagements, involve an applied learning experience, and are normally full-time.

SCOPE AND AUTHORITY

3. This Policy applies to structured Experiential Learning within graduate programs at Ontario Tech University. It establishes a framework and institutional expectations governing the development, administration, and oversight of such activities at the graduate level.

4. Structured Experiential Learning activities involve a defined period of work or placement, established learning outcomes, academic supervision, and formal evaluation as part of a graduate program. They typically involve engagement with external partner organizations, including industry, government, non-profit, or community partners. In some cases, structured Experiential Learning placements may also be hosted within the University where the experience provides a comparable applied learning environment.

5. Applied learning activities which exist outside the definition of Experiential Learning given in this Policy (e.g., those which are informal or embedded within individual courses or projects without a defined period of work or placement) are governed at the program level and fall outside the scope of this Policy.

6. Academic Units are responsible for the design and delivery of graduate Experiential Learning, including but not limited to the definition and oversight of participation requirements, learning outcomes, and evaluation methods.

7. Administrative Units will be consulted in the introduction or modification of graduate Experiential Learning components and are responsible for supporting their operational coordination and implementation. Administrative Units will not determine curriculum, academic assessment, or graduate program requirements.

8. The Dean of Graduate and Postdoctoral Studies, or successor thereof, is the Policy Owner and is responsible for overseeing the implementation, administration, and interpretation of this Policy.

POLICY

9. Design and Development of Experiential Learning Activities

9.1. All Experiential Learning programs must be developed in accordance with the university's Curriculum Change Procedures or New Program Procedures where applicable.

9.2. Academic authority for graduate Experiential Learning rests with Academic Units.

9.3. Faculties and graduate programs are responsible for the academic design of Experiential Learning activities within their programs.

9.4. Graduate programs will ensure that structured Experiential Learning opportunities:

a) Align with program learning outcomes;

b) Include appropriate academic supervision;

c) Meet the minimum expectations outlined in section 12 of this Policy.

9.5. Graduate programs will determine the following for Experiential Learning program components and activities:

a) Whether such components are required or optional;

b) The inclusion, structure, and format of components (e.g., Co-Op, Internship, projects, etc.);

c) Whether associated periods of work are full- or part-time;

d) Learning outcomes and academic requirements;

e) Methods used to evaluate student learning and progress.

9.6. It is recognized that Experiential Learning activities typically involve engagement with external partner organizations, including industry, government, non-profit, or community partners. The development and maintenance of these partnerships may be supported by Administrative Units in collaboration with Faculties.

9.7. In some cases, structured Experiential Learning placements may be hosted within the University where the experience provides a suitable applied learning environment.

9.8. Experiential Learning models may vary across programs depending on disciplinary context, degree requirements, and professional expectations.

9.9. In the design, development, and delivery of Experiential Learning activities, programs should consider domain-specific requirements regarding operations, reporting, and regulatory compliance.

10. Consultation During Development

10.1. Graduate programs proposing the introduction of or any modification to structured Experiential Learning components shall engage in the following consultations:

a) With the School of Graduate and Postdoctoral Studies (SGPS) to ensure alignment with graduate policies, procedures, and standards.

b) With the Co-operative Education, Experiential Learning and Career Development Office (CEELCD) or equivalent to ensure the availability of appropriate operational support and structures.

11. Delivery of Experiential Learning Activities

11.1. Faculties and graduate programs will collaborate with CEELCD (or equivalent) as needed on the shared responsibility of implementing Experiential Learning program components within the established frameworks for responsibilities at the University, including:

a) The development and maintenance of partnerships with external organizations;

b) Operational coordination of placements and Work Terms;

c) Student preparation and career readiness resources;

d) Institutional tracking and reporting related to Experiential Learning participation.

11.2. When a graduate student has a designated faculty supervisor, the supervisor may be involved in providing academic oversight of their participation in Experiential Learning activities and monitor progress in accordance with program requirements.

11.3. Graduate students participating in Experiential Learning activities are responsible for:

a) Meeting the academic and procedural requirements associated with their Experiential Learning activities;

b) Adhering to University policies and procedures applicable to their participation in Experiential Learning including (but not limited to) the Academic Integrity Policy and Student Conduct Policy;

c) Conducting themselves in a professional manner consistent with the expectations of the Placement Host and the University.

11.4. If the Faculty Dean determines that a student has violated the standard of behaviour appropriate to the expectations and norms of a given Experiential Learning activity, the student may be immediately suspended from participation at the Dean's discretion pending a review. The outcome of such a review may involve removing the student from the Experiential Learning activity and should consider the Student Conduct Policy, Respectful Campus Policy, Academic Integrity Policy, Graduate Academic Calendar, and any relevant professional regulations or standards.

11.5. SGPS provides institutional oversight of graduate Experiential Learning to ensure continued alignment with relevant policy instruments.

12. Minimum Academic and Structural Expectations

12.1. Graduate Experiential Learning must include:

a) Clearly defined learning outcomes appropriate to graduate-level study;

b) Academic oversight by (a) qualified graduate faculty member(s) and/or graduate program director or designate(s);

c) Mechanisms for monitoring student progress and evaluating the achievement of learning outcomes;

d) Clearly defined roles and expectations for the student, program, and Placement Host;

e) Appropriate documentation or agreements with Placement Hosts where required;

f) Compliance with Ontario Tech policies and procedures where applicable, including but not limited to the Health and Safety Policy, Academic Integrity Policy, Research Ethics Policy, Intellectual Property Policy, and Student International Travel Policy.

12.2. Additional structural requirements for specific Experiential Learning models may be established through appropriate procedures or program level guidelines in consultation with SGPS and CEELCD (or equivalent).

12.3. Participation in Experiential Learning activities is subject to minimum eligibility requirements. Graduate students must:

a) Maintain clear academic standing;

b) Not have a history of academic misconduct in their graduate program at the University. Students may request a waiver of this requirement from the Faculty Dean or designate;

c) Meet any additional requirements established by the graduate program (e.g., minimum CGPA, prerequisites).

12.4. If minimum eligibility requirements are not continuously met, graduate students may be removed from participation in Experiential Learning activities.

12.5. Graduate programs may establish additional requirements in consultation with SGPS and CEELCD (or equivalent) for participation in Experiential Learning, including expectations regarding duration, eligibility criteria, program progression, minimum grade point average (GPA), academic standing, and compensation, in accordance with program level guidelines, institutional policies, and nationally and/or provincially recognized best practices where applicable.

12.6. The design and delivery of graduate Experiential Learning activities should be informed by nationally and/or provincially recognized best practices for work-integrated learning, including principles established by Co-operative Education and Work-Integrated Learning Canada (CEWIL), where appropriate.

13. Tuition and Fees

13.1. Normally, students continue to pay all tuition and fees associated with their regular course of study during participation in graduate Experiential Learning activities. This excludes students currently participating in a Work Term (e.g., as part of a Co-Operative Education component).

13.2. Normally, students currently participating in a Work Term do not pay tuition nor ancillary fees.

a) Students participating in a Work Term while simultaneously completing one or more academic courses will pay any corresponding tuition and ancillary fees.

b) International students participating in a Work Term will continue to pay fees associated with the mandatory Universal Health Insurance Plan (UHIP).

13.3. All applicable tuition and fees associated with Experiential Learning components will be communicated to current and future students by the Registrar's Office.

13.4. Graduate students may be required to pay a one-time entrance fee for Co-operative Education components. Payment of the entrance fee ensures access to preparatory material, workshops, and ongoing support resources as applicable.

a) When students apply directly to the Co-Op stream of a graduate program, the entrance fee will normally be charged on entry to the program.

b) When students declare their participation in Co-Op after enrollment in a graduate program, the entrance fee will normally be charged at the time of declaration.

13.5. Students will pay a work term fee for each Work Term as applicable.

13.6. Withdrawal or registration changes in a student's program or associated courses and any applicable fee changes will be considered according to the provisions outlined in the Registration and Course Selection Policy.

13.7. The amounts of the entrance fee, work term fee, and any other fees associated with experiential learning are subject to change at the discretion of the Tuition Working Group and Ancillary Fee Committee, subject to the approval of the Board of Governors.

MONITORING AND REVIEW

14. This Policy will be reviewed as necessary and at least every three years. The Dean of Graduate and Postdoctoral Studies, or successor thereof, is responsible to monitor and review this Policy.

RELEVANT LEGISLATION

15. This section intentionally left blank.

RELATED POLICIES, PROCEDURES & DOCUMENTS

Institutional Quality Assurance Policy

Curriculum Change Procedures

New Program Procedures

Grading System, Research Progress, and Academic Standing Policy (Graduate)

Registration and Course Selection Policy

Academic Integrity Policy and Procedures

Student Conduct Policy

Respectful Campus Policy and Procedures

Graduate Academic Calendar

Health and Safety Policy

Intellectual Property Policy

Research Ethics Policy

Student International Travel Policy

CEWIL Canada Co-operative Education accreditation standards (external)

ACADEMIC COUNCIL
GRADUATE STUDIES COMMITTEE (GSC)

Minutes of the Public Session of the May 26, 2026 Meeting
via Videoconference
9:02 a.m. - 10:04 a.m.

Graduate Studies Committee Agenda & Materials 2025-2026

Present:

Pejman Mirza-Babaei, Chair	Shahram Heydari	Diana Petrarca
Akramul Azim	Mehdi Hossein-Nejad	Ghaus Rizvi
Carla Cesaroni	Dima Jawad	Andrea Slane
Krystina Clarke	Karolina Krystyniak	Akira Tokuhiro
Nicola Crow	Xianke Lin	Lennaert van Veen
Catherine Davidson	Holly MacPherson	Nick Wattie
Jennifer Abbass Dick	Olga Marques	Ken Wilson
Franco Gaspari	Kimberley McCartney	Adam Wingate
	Thomas McMorrow	

Regrets:

JoAnne Arcand	Sayyed Ali Hosseini	Carolyn McGregor
Dario Bonetta	Les Jacobs	Scott Nokleby
Amanda Cooper	Hossam Kishawy (on leave)	Carol Rodgers
Leigh Harkins	Lori Livingston	Faisal Qureshi

Staff and Guests:
Sandra Grouette (Secretary)

1. **Call to Order and Land Acknowledgement**
   The Chair called the Public Session of the Graduate Studies Committee (GSC) Meeting to order at 9:02 a.m. and D. Petrarca provided their personal Land Acknowledgement.

2. **Approval of Agenda**
   Upon a motion duly made by S. Heydari and seconded by D. Jawad, the GSC Agenda was approved as presented, including approving and receiving the Consent Agenda and its contents.

3. **Chair's Remarks**
   The Chair announced the appointment of Dr. Adam Dubrowski as Associate Dean, Graduate Academic Affairs, and provided an overview of the School of Graduate & Postdoctoral Studies (SGPS) Associate Dean portfolio structure supporting graduate academic affairs, program development, and graduate and postdoctoral engagement activities. He also shared student and

institutional achievements, including a third-place finish at the provincial Three Minute Thesis (3MT®) competition and the successful allocation of provincial doctoral and postdoctoral award quotas. The Chair thanked faculty, Committee Members, and staff for their ongoing support and contributions.

With respect to the changes in the SGPS Associate Dean responsibilities, the Chair clarified that the previous faculty-based model had been replaced with portfolio-based roles to improve consistency across the University and strengthen strategic leadership in key areas such as graduate programs, academic affairs, and engagement.

4. Academic Policy Instruments

4.1 Institutional Quality Assurance Process (IQAP) Policy and Procedures* (M)

The Chair provided background on the proposed revisions to the Procedures, noting that feedback on the revisions and questions raised at the previous meeting, through the Undergraduate Studies Committee (USC), and by advance written submission had been addressed within the extensive supporting materials prepared by CIQE, along with any applicable changes to the Procedures. The Chair advised that at its May Meeting, USC approved the revisions and the revised Procedures were now presented to GSC for final consideration and approval.

K. McCartney clarified, in response to questions, that special topics courses that are delivered as part of a degree or diploma program, regardless of content, require the same Faculty oversight and curriculum approval as other degree and diploma courses. She also noted that Final Assessment Reports are prepared using documentation previously approved through Faculty Council processes and reviewed through institutional governance pathways.

Upon a motion duly made by C. Cesaroni and seconded by D. Jawad, that the Graduate Studies Committee hereby approves the updated IQAP Curriculum Change Procedures, Cyclical Review and Auditing Procedures, and New Program Procedures.

4.2 Registration and Course Selection Policy Amendments* (M)

A. Wingate explained that the proposed revisions were to incorporate graduate students into the existing policy for late withdrawal process to ensure equitable treatment across student populations. The changes would update the current graduate-specific tuition and late withdrawal appeal form with the University's established consideration for late withdrawal process.

A. Wingate also clarified that graduate course drop-deadlines remain unchanged and earlier than undergraduate deadlines. He further advised that late withdrawals under the proposed framework would apply only in exceptional circumstances, such as medical or compassionate grounds, through a formal review process.

Upon a motion duly made by C. Cesaroni and seconded by F. Gaspari, that GSC hereby recommends to Academic Council the approval of the revised Registration and Course Selection Policy for approval by Academic Council.

5. Cyclical Program Review (Approval)

5.1 18-Month Follow-up Report: Master of Information Technology Security* (M)

K. McCartney noted that many action items had either been completed or remained ongoing as part of continuous program improvement efforts. She highlighted positive progress in implementing review recommendations.

Upon a motion duly made by A. Slane and seconded by J. Abbass Dick, that GSC hereby approves the 18-Month Follow-Up Report from the Master of Information Technology Security Cyclical Program Review, as presented.

6. Major Program Modifications (Recommendation)

6.1 Faculty of Engineering and Applied Science: Master of Engineering Management* (M)

With D. Jawad initially unable to present this agenda item, K. McCartney shared that the proposed change creates multi-modal delivery options for the program, enabling students to complete courses through online, hybrid, or in-person formats. The change is intended to improve accessibility, flexibility, and enrollment opportunities while leveraging the Faculty's existing experience in delivering hybrid courses.

D. Jawad clarified that at this time the program will be a single cohort model, with students able to participate through online or in-person delivery options.

Upon a motion duly made by J. Abbass Dick and seconded by S. Heydari, that GSC hereby recommends to Academic Council the approval of the Major Program Modification to the Master of Engineering Management program to expand mode of delivery for the program to include a hybrid and online option in addition to existing in-person option.

6.2 Faculty of Health Sciences: Master of Health Sciences* (M)

N. Wattie reported that the proposal establishes a new Medical Laboratory Sciences field within the existing Master of Health Sciences program. He advised the initiative builds on the University's undergraduate leadership in the discipline and is intended to address growing national demand while expanding elective offerings and future graduate-level specialization opportunities within the Faculty of Health Sciences.

Upon a motion duly made by J. Abbass Dick and seconded by A. Slane, that GSC hereby recommends to Academic Council the approval of the Major Program Modification to the Master of Health Sciences program to establish a new Field in Medical Laboratory Science and to add new elective offerings to the program.

6.3 Faculty of Health Sciences: Master of Science in Nursing* (M)

J. Abbass Dick shared that following the dissolution of the partnership with Trent University, the proposed changes intend to better align the program with the Master of Health Sciences

framework as well as evolving student and faculty needs. She advised that updates include course revisions, adjustments to admissions processes, increased enrollment capacity, and expanded elective offerings.

Upon a motion duly made by A. Slane and seconded by N. Wattie, that GSC hereby recommends to Academic Council the approval of the Major Program Modification to the Master of Science in Nursing program to update program curriculum and requirements prompted by the dissolution of the partnership with Trent University through which the program was previously offered.

7. Minor Program Adjustment (Approval)

7.1 Faculty of Health Sciences: PhD in Health Sciences* (M)

N. Wattie advised that the revisions are minor housekeeping items due to the previously approved changes to the Master of Science in Nursing and Master of Health Sciences programs. The updates primarily involve adjustments to elective and course offerings, with no substantial changes to the PhD program itself.

Upon a motion duly made by A. Slane and seconded by J. Abbass Dick, that GSC hereby approves the Minor Program Adjustment to PhD in Health Sciences to update elective offerings.

8. New Graduate Scholarships, Awards, and Fellowships * (M)

M. Hossein-Nejad stepped in as Chair, as P. Mirza-Babaei presented a proposal to enhance graduate student support through the introduction of new awards, fellowships, and scholarships. Developed through consultation with faculty and University leadership, he advised the initiative is intended to modernize SGPS funding opportunities, strengthen support for students, and align scholarship offerings with the university's strategic priorities and commitment to innovation and community impact.

Members discussed implementation considerations for the proposed awards and scholarships, including adjudication processes, communication timelines, distribution across faculties, and support for international and in-program graduate students with the Committee overall applauding these new opportunities. P. Mirza-Babaei clarified that SGPS is working with faculties and graduate finance teams to develop operational details and updated funding terms and conditions. It was further explained that the scholarships are intended to support student recruitment, engagement, and funding continuity, including assistance in exceptional circumstances such as temporary funding gaps or limited faculty resources. The importance of equitable allocation processes and timely communication of financial support were also noted.

Upon a motion duly made by S. Heydari and seconded by F. Gaspari, that GSC hereby approves the establishment of the following new graduate awards, fellowship and scholarships:

- *Provost's Graduate Entrance Scholarship*
- *International Scholar-at-Risk Graduate Scholarship*
- *Public Scholar Graduate Fellowship*
- *Graduate Career Enhancement Award*

- *Graduate In-Program Scholarship*
- *Graduate Professional Development Award*
- *Dean's Scholarship*

P. Mirza-Babaei resumed as Chair.

9. Consent Agenda* (M)

The Chair confirmed that the contents of the Consent Agenda were approved and received under Agenda Item # 2.

9.1 Public Minutes of the April 28, 2026 Meeting* (M)

9.2 Removal of Minimum Program Tuition Fee* (I)

9.3 Memoranda: (I)

Gdip - Railway Engineering - Course Proposals

9.4 Minor Curricular Changes: (I)

Course Change:
ENGR 5427G

9.5 Associate Graduate Faculty (I)

- Education, Adam Cole, Faculty of Health Sciences
- Health Sciences, Elizabeth Peter, Faculty of Health Sciences
- Materials Science, Sanela Martic, Faculty of Science
- Nursing, Crystal Garvey, Faculty of Health Sciences
- Nursing, Michele McIntosh, Faculty of Health Sciences
- Nursing, Leslie Malloy-Weir, Faculty of Health Sciences
- Nursing, Rachel Elliott, Faculty of Health Sciences

Graduate Faculty (I)

- Education, Sharon Lauricella, Faculty of Social Science and Humanities

10. Termination

There being no other business, and upon a motion to terminate by C. Cesaroni, the GSC Meeting terminated at 10:04 a.m.

Sandra Grouette, Assistant University Secretary