Fleming College

Board of Governors

May 2019 - Public Meeting

Meeting Date:	May 22, 2019
Meeting Time:	Lunch from 12:30 p.m. – 12:55 p.m. Meeting begins at 1:00 p.m.
Meeting Location(s):	Brealey Campus - Scholfield Boardroom, Room B3330

Meeting Agenda

1.	Call to Order, Welcome to the Traditional Territory and Confirmation of Quorum	2 min
2.	Declaration of Conflict	1 min
3.	Approval of Meeting Agenda	1 min
4.	Consent Agenda *The following items will be addressed through the Consent Agenda unless specifically requested to be removed for separate attention, by request.* 4.1 – Minutes of the April 24, 2019 Public Meeting pages 3 - 6 4.2 – Quality Assurance Dashboard as of May 7, 2019 pages 7 - 8	1 min
5.	Business Arising (not otherwise covered)	5 min

Decision Items

6.	Strategic Plan – 2019 – 2024 Final *To be provided at the meeting*	M. Adamson, J. Jackson and D. Van Parys	20 min
7.	2018 / 2019 Annual Report pages 9 - 34	S. Gosselin	10 min
8.	2019 / 2020 Business Pan pages 35 - 45	S. Gosselin	10 min
9.	Internally Restricted Net Assets pages 46 - 47 – *from the Finance and Audit Committee*	G. Gillespie	5 min
10.	Draft 2018 / 2019 Audited Financial Statements pages 48 – 96 - *from the Finance and Audit Committee*	G. Gillespie	5 min
11.	New Program: Conservation Biology pages 97 - 161	T. Phillips and B. Goodwin	10 min
12.	New Program: Mechatronics pages 162 - 213	T. Phillips and J. Jackson	10 min

Information Items

13.	Program Revision: Business Analytics (rev. Applied Data Analytics) pages 210 - 211	T. Phillips and J. Jackson	5 min
14.	Eastern Ontario College Consortium – Aviation pages 212 - 216	T. Phillips and J. Jackson	5 min
15.	Fleming College Certificates Offered Through Ontario Learn pages 217 - 218	B. Wootton and E. Rees	5 min
16.	Update from the Board Chair Next Public Meeting Date: June 26, 2019, Sutherland Campus – time to be confirmed	D. Marinigh	10 min
17.	Report from the President pages 219 - 222	M. Adamson	10 min

Discussion Items

18.	Other Business	5 min

Adjournment approximately 3:00 p.m.

Board of Governors

Public Meeting Minutes

Meeting Date: Wednesday, April 24, 2019
Meeting Time: 1:20 p.m.
Meeting Location: Brealey Campus - Scholfield Boardroom, Room B3330

Present:
Mr. Dan Marinigh, Board Chair
Ms. Katherine MacIver, Vice Chair
Mr. Fred Clifford
Ms. Chloe Craig
Mr. George Gillespie
Ms. Hajni Hos
Ms. Rosemarie Jung
Ms. Katherine MacIver
Ms. Mary Lou McLean
Ms. Cathy Praamsma
Ms. Maureen Adamson, President

Regrets:
Ms. Rosemarie Jung
Dr. Aaron Grant
Mr. Mike Leonard

Senior Administration:
Mr. Drew Van Parys, Executive Director, Marketing and Advancement
Dr. Brent Wootton, Vice President, Applied Research and Innovation
Dr. Tom Phillips, Vice President, Academic Experience
Ms. Sandra Dupret, Vice President, Student Experience
Ms. Sherry Taylor, Vice President, Organizational Effectiveness and Human Resources
Mr. Brian Baker, Vice President, Corporate Services
Ms. Sherry Gosselin, Director Project Management and Institutional Research
Mr. Roger Fitch, Chief Information Officer

Administrative Support:
Ms. Sandra Armstrong, Administrative Assistant
Ms. Sarah Beirness, Executive Assistant

Guests:
Ms. Angie Sims, Director, Budget Services
Mr. Naman Khandelwal, President, Student Administrative Council
Mr. Chris Smith, General Manager, Student Administrative Council
Ms. Victoria Hynes, President, Frost Student Association
Mr. Kieran Murphy, Director of Finance, Frost Student Association
Mr. Jason Jackson, Co-Chair of Fleming College's Strategic Planning Committee and Academic Chair, School of Trades and Technology
Ms. Trish O'Connor, Director Office of Sustainability

1. Call to Order

The Chair called the meeting to order at 1:21 p.m. and acknowledged holding the meeting on the traditional lands of the Mississauga and Anishinaabe peoples.

Quorum was confirmed, regrets noted, staff and guests in attendance were welcomed.

2. Declaration of Conflict

There were no conflicts disclosed concerning items identified on the agenda.

3. Approval of the Agenda

Moved by Ms. Hos and seconded by Mr. Gillespie that the Board of Governors of Sir Sandford Fleming College approve the agenda for the April 24, 2019 Public meeting. Carried

4. Consent Agenda

Moved by Ms. Grady and seconded by Mr. Clifford that the Board of Governors of Sir Sandford Fleming College approve the Consent Agenda for the April 24, 2019 Public meeting and, through this consent approve:

- minutes from the March 27, 2019 Public Meeting; and
- the report on Contract Awards

5. Business Arising from the Previous Meetings (not otherwise covered)

None identified.

6. Decision Items

6.1 Approval of Draft 2019 / 2020 Financial Plan

The Chair welcomed Mr. Baker and guest Ms. Sims, Director, Budget Services. Ms. Adamson thanked Mr. Baker and Ms. Sims for their work on the 2019 / 2020 Financial Plan. Administration is seeking approval on the 2019 / 2020 Financial Plan as presented to the Board for submission to the Ministry of Training, Colleges and Universities. Ms. Sims acknowledged that while we do not have the contingency and surplus that we had in years prior, we remain in good financial shape. The biggest financial risk for the future remains enrolment.

Moved by Mr. Clifford and seconded by Mr. Gillespie that the Board of Governors of Sir Sandford Fleming College approve the Fleming College Financial Plan 2019-2020 for submission to the Ministry of Training, Colleges and Universities. Carried

6.2 Approval of Student Levied Fees

The Chair welcomed guests Mr. Khandelwal, President, Student Administrative Council; Mr. Smith, General Manager, Student Administrative Council; Ms. Hynes, President, Frost Student Association; Mr. Murphy, Director of Finance, Frost Student Association and Ms. Sims (previously introduced) with Senior Administrators, Ms. Dupret and Mr. Baker. The Ministry of Training, Colleges and Universities released a new policy related to student fees, and what can be classified as an essential fee. Proposed essential fee categories (as outlined in the briefing note provided) include Athletic and Recreation; Career Services; Student Buildings; Health and Counselling; Academic Support; Student Achievement and Records; Health and Dental Plan (with opt-out option); and Student Transit Passes (existing mandatory transit passes will remain). All other fees are considered non-essential and must be optional.

Moved by Ms. Praamsma and seconded by Ms. McLean the Board of Governors of Sir Sandford Fleming College approve the Student Levied Fees for 2019 / 2020 as presented. Carried

6.3 New Program Approval – Ontario College Graduate Certificate in Geothermal Systems

Guests Mr. Jackson, Academic Chair, School of Trades and Technology and Ms. O'Connor, Director Office of Sustainability were welcomed. The Geothermal Systems program was previously presented to the Board of Governors in the Fall of 2018 for preliminary feedback, and the program was supported by the Board. The final business case was prepared and provided in advance to the Board for review and final approval. Noted that this would be the first intercampus program offering at Fleming College.

Moved by Ms. Craig and seconded by Ms. MacIver that the Board of Governors of Sir Sandford Fleming College approve the business case for Ontario College Graduate Certificate in Geothermal Systems with a proposed launch date of January 2020 for submission to the Ministry Training Colleges and Universities. Carried

6.4 Exception to Policy 5-502 Issuance of Diplomas & Certificates

Ms. Adamson indicated that the recommendation to the Board is to make an exception to Policy 5-502 Issuance of Diplomas and Certificates removing the need for a live signature. This exception would allow for the electronic inscription of the Registrar's signature which is consistent with practice at the majority of other Ontario Colleges. After June 2019, a fulsome update to Policy 5-502 would be undertaken.

Moved by Ms. Grady and seconded by Ms. MacIver that the Board of Governors of Sir Sandford Fleming College approve the proposed exception to Policy No. 5-502 Issuance of Diplomas and Certificates effective immediately until the end of June 2019. Carried

7. Discussion Items, Reports and Information Items

7.1 New Program – Public Infrastructure

A proposal to offer a new part-time Fleming College Certificate in Public Infrastructure Asset Management through Ontario Learn to launch January 2020 was provided to the Board. Dr. Wootton explained that this would be the first program to focus on Municipal infrastructure in Canada and as such this provides a significant opportunity for Fleming.

Moved by Ms. Praamsma and Seconded by Ms. Craig that the Board of Governors of Sir Sandford Fleming College support the preliminary proposal for a Fleming College Certificate in Public Infrastructure Asset Management, offered through Ontario Learn, with an implementation date of January, 2020. Carried

7.2 Quality Assurance Management Report

The April 2019 Quality Assurance Monitoring Report was included in the Board package for information.

Moved by Mr. Clifford and seconded by Ms. McLean that the Board of Governors of Sir Sandford Fleming College receive the Quality Assurance Monitoring Report for information. Carried

7.3 Verbal Update from the Board Chair

- The next Board of Governors Meeting will be on May 22, 2019 at Sutherland Campus, time to be confirmed.
- Fleming College's Convocation ceremonies occur May 31, through June 14th, please speak with Ms. Beirness or Ms. Armstrong after the meeting to review dates and times and confirm your attendance for one or more of the ceremonies.
- Mr. Sinclair of CEC has tendered his notice to retire – replacement proceedings are underway
- In the April 11th Provincial budget there was a note pertaining to executive compensation. This directive will give the Board the information necessary to work on compensation for the President, Vice-Presidents and other executive level positions.

Moved by Ms. Craig and seconded by Ms. Grady that the Board of Governors of Sir Sandford Fleming College receive the verbal report of the Board Chair for information. Carried

7.4 Report from the President

Ms. Adamson's report was provided in the meeting package and it included a summary of key updates since our March 2019 meeting.

Moved by Ms. Hos and seconded by Mr. Clifford that the Board of Governors of Sir Sandford Fleming College receive the Report from the President for information. Carried

8. Other Business

None identified.

9. Roundtable – "Community Connections"

Members were afforded the opportunity to share information that may be of interest to other Governors or to the College.

10. Adjournment: *Moved by Ms. Craig and seconded by Ms. McLean to adjourn the Public Board of Governors meeting at 2:21p.m. Carried*

OCQAS Quality Audit Improvement Plan Progress Report

May 7, 2019

Operational Framework

Governance

- Strategic Planning
- College Organizational Structure
- Board of Governors
- Committee Structure

Policy & Procedure

- Quality Assurance focused Development & Redesign

Legend:

- Proceeding well; Completion by end of 2018/2019
- Underway, additional resources required; Completion by end of 2019
- Work in Progress; Anticipated completion 2020

Click here to download additional definitions and terminology

Click here to download Quality Assurance detailed plan with updates

Accountability

Develop Annual Auditing Processes

- Curriculum Mapping
- Program Advisory Committees (PAC)
- Annual & Cyclical Program Review (APR/CPR)
- Professional Development Plans

Access to Policy & Procedure

- External Access
- Improved Access for Students

Administrator Accountability

- Consideration of Quality in Annual Performance Review

OCQAS Quality Audit Improvement Plan Progress Report

May 7, 2019

Systems & Measurement

Data Management Systems

- Program Advisory Committee (PAC) Recommendations
- VLO/EES Mapping in Evolve
- Annual & Cyclical Program Review (APR/CPR)
- Teacher and Course Evaluations UPDATE
- Program Efficacy Review
- Gen Ed Mapping UPDATE
- Service Area Quality Assurance Evaluation Process
- Risk Registry
- Professional Development Plan Tracking

Professional Development

Orientation & Onboarding

- Full-time faculty
- Contract faculty
- Support staff
- Administrators

Ongoing Human Resource Development

- Coordinator's Toolkit
- Faculty Evaluation Process
- Organizational Professional Development Plan

Supports to Program Quality

- Development of Academic Plan
- Increased awareness of Curricular Excellence Model
- Work Integrated Learning Assessment Best Practices
- Implementation of Student Advising Model
- VLO focussed Faculty Professional Development UPDATE
- Assessment Mapping Processes for Program Review

Fleming College

Fleming College

Annual Report
2018-2019

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APPROVED: by the Board of Governors, ?

Introduction

Our 2018/2019 Annual Report is the last report related to the college's 2015-2018 Strategic Plan. The past year has been one of transition and change, highlighted by the hiring of our new President, Maureen Adamson, and the development of a new strategic plan to guide the college's development over the next five years.

Looking back, the college made progress on many priorities and metrics set out in the Strategic Mandate Agreement (SMA2) 2017-2020, including areas such as overall enrolment growth, applied research and financial performance. Several infrastructure improvements were completed during the year, including two significant projects that improved classrooms, labs, student spaces at our Sutherland and Frost Campuses. These projects were completed with the support of the Strategic Infrastructure Fund.

With the guidance of our new plan, Fleming will undergo tremendous change. Building on the foundation we have, including some of the achievements experienced in 2018-2019, the college will create a new emphasis on meeting the needs of our regional labour markets, build and deliver exceptional student experiences and more fully integrate the college into our communities to build economic and social prosperity for all.

June 2019

On behalf of the Board of Governors of Sir Sandford Fleming College, it is my pleasure to present Fleming College's 2018-2019 Annual Report.

During the past year, the Board has been engaged in significant strategic issues, challenges and opportunities with implications that affected Fleming College, our students and our communities. Perhaps most exciting is the Board recruiting a new President for the College. Maureen Adamson was the result of a national search conducted by the Board with assistance from the Phelpsgroup. Maureen assumed the role August 20, 2019.

A new by-law was signed for the general conduct of the affairs of Sir Sandford Fleming College. These by-laws were unanimously approved by Fleming College's Board of Governors and will be a cornerstone to Fleming's future renewal, and a commitment to best practice in governance and board oversight.

This Annual Report provides a detailed and balanced analysis of our aspirations and accomplishments. On behalf of my Board colleagues, I would like to express our appreciation to the Province of Ontario for their ongoing commitment to postsecondary education, and our gratitude to President Maureen Adamson, and the entire team of Fleming College employees for their dedication and hard work in positioning the College for the next chapter of Fleming's strategic direction.

Finally, I wish to thank and acknowledge the work of my fellow Governors. It has been a pleasure and a privilege to have served as Board Chair this past year.

Dan Marinigh, Chair
Sir Sandford Fleming Board of Governors

June 2019

Along with Board Chair Dan Marinigh and the Board of Governors of Fleming College, I am pleased to submit this report on 2018-2019 progress made and milestones achieved over the past year.

This last year has been monumental for change as we set out to create a new Strategic Plan that will oversee the next fives years of excellence at Fleming College. Over the last few months, we have hosted facilitated feedback sessions, online surveys, workshops and many conversations on and off campus to collect input and guidance on our new direction. Our transformational direction has been approved by the Board and will be launched in June of this year. This will be reflected in next year's Annual Plan.

Fleming has also focused on key operational matters such as KPIs, employment engagement strategies and automating as many services as possible to ensure students can navigate effectively and be successful.

In my first year as President of Fleming College, I am inspired by the new direction of the college. While change is difficult, I want to acknowledge all the hard work and dedication of our Board, employees, our communities and partners. We are at a point where growth and stability is on the horizon. I am excited and encouraged about our progress and our future.

Maureen Adamson,
President

2015-2018 Strategic Plan

Vision, Values and Core Promise

Our Vision

Fleming
More than skills.

Inspired by Sir Sandford Fleming, we are inventive. Fleming will be known for our continuous pursuit of excellence in teaching and every endeavour.

Our graduates will be recognized for exceptional knowledge, skills, attitudes and values on their lifelong journeys of learning and discovery.

We are community focused, yet we play a distinctive role serving Ontario and beyond through our specializations.

Our Values

Learning – knowledge, skills and attitudes – for work and life

Collaboration – with communities and employers, students and each other

Creativity – in teaching and supporting students

Continuous Improvement – to innovate, grow, and excel

Sustainability – for our college and our environment

Inclusiveness – to welcome and value all students and all perspectives

Our Core Promise to Students

Learn (Kendaaswin[1])
You will be empowered to develop both technical and life skills. You will be the architect of your own experience, choosing from an array of exceptional educational and extracurricular opportunities within and beyond the classroom.

Belong (Dibendaagoziwin[1])
There is a special feeling to our campuses. Our faculty and staff members, along with your classmates, welcome, engage and support you as you live, learn and grow as part of our inclusive learning communities.

Become (E-yaawyin[1])
You will be equipped with the tools you need to build a better future – for yourself and for those around you. You will have renewed confidence in your skills, values and capabilities. From here, you can go anywhere.

[1] Ojibwa translation by Elder Shirley Williams

2017-20 Strategic Mandate Agreement
Areas of Differentiation

Like all colleges Fleming focuses on student success, programs and teaching and learning as our core mission. For the purposes of differentiation, we are directing our attention on aspects not common to all colleges.

- **Student Experience**
  Fleming already offers a unique student experience characterized by personalized attention, small class sizes, strong identity with the community and a special mix of students from the region together with Indigenous students, international students and students from across the province who choose to relocated and enroll in our specialized programs. We will continue to enrich this personalized approach and develop strategies to attract more non-direct students who value this offer.

- **Innovation in Teaching and Learning**
  Fleming is a recognized leader in offering differentiated programs in the fields of Natural Resources and Environmental Sciences. In a world where environmental degradation and climate change represent the biggest challenges to the future of the globe, Fleming has a vital role to play. We will focus investments particularly in strengthening our current programs in this area and complementing them with new programs that will meet the need for skilled and creative workers in these disciplines.

  As well, Fleming will invest in new approaches to teaching and learning that increase access and flexibility for learners and offer new opportunities for in-service and second career education that are not limited by time or geography.

  We recognize the challenges and opportunities inherent in the emerging technology-driven, knowledge economy. We will offer students increasing opportunities for cross-disciplinary study, experiential learning and career development that are consistent with the recommendations in *Building The Workforce of Tomorrow*.

- **Access and Equity**
  Our priorities regarding access and equity reflect our differentiated status as a mid-size college: (a) located outside the Greater Golden Horseshoe; (b) in a region experiencing significant shifts in demographics and labour market conditions; (c) located near growing Indigenous populations; and (d) with a growing international student population. In response, we will implement strategies that make Fleming increasingly accessible to and attractive for non-direct applicants, students needing support bridging to postsecondary education, Indigenous students, and international students.

- **Applied Research Excellence and Impact**
  Fleming is an established leader in applied research in wastewater treatment. We leverage our expertise, reputation and partnerships to expand the scope of the current work and to launch the new Centre for Sustainable Municipalities. We will double the number of students and faculty involved in applied research, thereby increasing research capability internally and in the future labour force.

- **Innovation, Economic Development and Community Engagement**
  The college will continue to drive innovation, economic development and community engagement in the following ways:
    - By pursuing organizational excellence and sustainability internally, thereby growing our influence as an economic engine for the region;
    - By increasing our applied research activity, thereby drawing new investment to the region and creating new knowledge and solutions through our research;
    - By collaborating with industry and leading agencies in the region to strengthen human resource capacity and organizational performance;
    - By involving our staff and students in the institutions that are the main drivers of community health and well-being (health, recreational and social service agencies);
    - By our presence in four distinct areas of the region (Peterborough, Lindsay, Cobourg and Haliburton) and in each, playing a catalytic role in convening, educating and creating.

Achievement of Objectives by 2015-18 Strategic Plan Goals

OBJECTIVE	ACHIEVEMENT OF OBJECTIVES
1. DELIVER OUTSTANDING STUDENT LEARNING AND EXPERIENCES	
1.1. Reimagine and design learning opportunities to fully engage our students using accessible, outcomes-based approaches, applied learning and authentic assessment.	
1.1.1 Launch 2 new programs in e-Learning formats. Develop a plan to increase new courses in e-learning formats depending on programming mix and direction.	**Met Target**
1.2. Promote and recognize innovation and excellence in teaching by supporting and engaging faculty in industry practices, discipline research, and educational technology.	
1.3. Develop and implement an integrated student success strategy to support our domestic and international students from recruitment through to graduation.	
1.3.1 Customize, integrate and streamline the *Student Experience* by analyzing the student journey from prospect to alumni. Create at least 3 initiatives to be implemented in 19-20 to enhance differentiation (aligned with *IP for Services Objective*).	**Met Target**
1.3.2 Establish a Retention Committee as a subcommittee of Academic Council to review retention stats, comparators, best practices and make recommendations for improvement. A member of the Student Services team will also be represented on this committee to bring this perspective to 'student success'.	**Partially Met Target** *Faculty, Student and Staff feedback not attained.*
1.4. Continue common and core program development with differentiation as a key principle, and expand our leadership role in specialized program areas; Environmental and Natural Resource Sciences, Trades and Technology, Arts and Heritage, and healthcare and Community Services.	
1.4.1 Implement redesigned New Program Development process. Resulting in 4 new programs approved at the board during the 18/19 year.	**Exceeded Target** *7 program approvals instead of the planned 4*
1.5. Focus unrelentingly on quality by implementing effective, evidence-based program review and accreditation processes to ensure outstanding student learning.	

1.5.1 Successfully implement, monitor and report on 2018 OCQAS Audit recommendations to improve quality as identified by OCQAS.	**Met Target**
1.6. Provide clear and accessible academic and career pathways for all programs, enabling mobility between institutions and programs.	
1.7. Leverage selected applied research activities and resources to complement programs, enhance learning and provide value to sponsors, partners and clients.	
1.7.1 Continue to promote and support applied research activities in other areas of the College including for the School of Business and School of Trades and Technology, as well as for SENRS with emphasis on aquaculture. Success will include a grant of at least $100K for aquaculture applied research.	**Partially Met Target** *Postponed 3 grant proposals; waiting for decision on $150k*
1.7.2 Through the Centre for Sustainable Municipalities (CSM): - secure NSERC Industrial Research Chair for $1M of NSERC funding and $1M in-kind funding; - secure $50K in small project funding; and - secure training and fee-for-service Revenue of at least $200K	**Met Target**
1.7.3 Through the Centre for Advancement of Water and Wastewater Technologies (CAWT) - implement expansion of lab with already secured $2.5 million CFI-ORF funding; - expand certifications services with NSF especially BNQ-3680-600 which will require partnering with a municipality. - 5 small grants totaling $125K this year - successfully execute and complete 13 SOWC funded projects valued at >$2M; and - secure NSERC Technology Access Centre Funding of $1.75M	**Exceeded Target** *Exceeded small grants target; met all other targets*
2. COLLABORATE AND PROSPER WITHIN OUR COMMUNITIES	
2.1 Design Fleming programs to include learning opportunities in the workplace and in our communities, while in turn providing our communities with access to college resources and skills.	
2.1.1 Utilize $350K of *Career Ready* funding over two years to provide opportunities to students in programs where those opportunities are currently not available and to expand opportunities in other programs. The *Career Ready* initiative will move us toward the Ministry's goal of "*ensuring that every student has at least one Experiential Learning (EL) activity by the time they graduate from a publicly*	**Partially Met Target** *Unspent $112K of project activity (requested of MTCU to carry-over to 19-20)*

funded Post-Secondary Education institution by April 2019".	
2.2 Strengthen our partnerships with our local communities and our extensive program-related communities of interest through collaborative projects and new communications and outreach strategies.	
2.2.1 Increase the number of female students enrolled in the School of Trades & Tech. by 22% for 2019-20 through a mature learner program, sponsorships and Homeward Bound Program.	**Met Target**
2.3 Encourage, facilitate and recognize student and staff contributions toward community betterment.	
2.4 Develop and implement a comprehensive internationalization plan to: improve access and success for international learners, enhance international aspects of curriculum, grow international partnerships and provide expanded international study and work opportunities for students and faculty.	
2.4.1 Develop Business Intelligence with a view to create the optimal balance of international and domestic enrolment targets, ensuring adequate student supports are in place.	**Partially Met** *Continuing Objective into 19-20*
2.5 Work with both local and distant Indigenous communities to expand and improve programs and services, access, participation, and success rates for Indigenous learners.	
2.5.1 Investigate the opportunity for an Indigenous Studies Chair	**Met Target**
3. EXCEL AS AN ORGANIZATION	
3.1 Promote a creative integrated culture focused on continuous improvement in which employees are engaged, accountable and encouraged to take responsible risks while being led by leaders who are collaborative and effective communicators.	
3.1.1 Develop a new Strategic Plan and new Academic Plan for the College.	**Partially Met Target** *Academic Planning in 19-20*
3.1.2 Complete an Employee Engagement Survey and develop plans to address areas of opportunity".	**Met Target**
3.2 Utilize integrated planning tools to strategically allocate resources and improve the effectiveness and efficiency of student learning and service experiences.	
3.2.1 Launch the One-Card system by establishing a One-Card Steering Committee to direct the roll-out	**Met Target**

of the Year 1 phase of the Implementation plan at Sutherland Campus.	
3.3 Ensure that both students and employees value our facilities and information technology resources as clear assets for their learning and work.	
3.3.1To provide enhanced program delivery, implement the recently acquired *Virtual Desktop Infrastructure* in a pilot project to enable 2 sites (i.e. Haliburton and Norwood's Fire Fighting Program) to use physical space as both a hands-on teaching environment and a computer lab for students. Success of this pilot project will contribute to flexible delivery of programs. This will also contribute to cost savings of PC lab refreshes by $200K for the 19/20 year.	**Met Target**
3.3.2 Implement required improvements identified in the *17/18 Cyber Security Review*. Improvements will address IT infrastructure, policies and procedures as outlined in the ERM - Cyber Risk Register.	**Met Target**
3.3.3 Upgrade Faculty and students to the cloud with Microsoft Office 365 software suite to enable them full use of the collaboration tools the product offers.	**Met Target**
3.3.4 Develop a multi-campus, *Long-Range Housing Plan* that includes strategies to address a number of capacity issues for the present and future.	**Partially Met Target** *Project on Pause*
3.3.5 Through a GGCRP Innovation Grant of $6.2M and an annual capital project that will result in reduction of 600 Tons of C02 by end of 2018/19, Fleming will: - reduce deferred maintenance on existing equipment, - decrease the carbon footprint of the College, - increase academic alignment with current and future energy reduction/generation technologies	**Met Target**
3.4 Meet and Exceed a "Silver" rating in STARS sustainability measures, while continuing to plan and implement key improvement to the physical environments at all campuses, including a new Frost Campus Master Plan.	
3.4.1 Launch 2018-2021 Sustainability and Climate Action Plan aligning targets with Provincial priorities and execute first year annual action plan (18/19) achieving 80% of the annual goals.	**Met Target**
3.5 Bring Core Promise to life by focusing on the way we deliver our student experience to enhance the skills, attitudes and values that lead to success in work and life.	

3.5.1 Develop a new "Harm Reduction" strategy to build on previous studies and work concerning opioid and marijuana increased prevalence in the student environment and society in general. The strategy will focus on education for students & staff.	**Partially Met Target** *Final draft of strategy incomplete*
4. ENHANCE FINANCIAL HEALTH AND SUSTAINABILITY	
4.1 Improve financial sustainability by doubling our financial reserves to allow for more investment in capital and learning resources.	
4.2 Grow overall enrolment and new revenue streams through effective program portfolio management, the launch of new contract training programs for both domestic and international markets and through enhancements to our enrolment and retention processes.	
4.2.1 Continue to develop and implement a Strategic Enrolment Long-Term Plan that is aligned with the SMA2 and will inform the SMA3.	**Partially Met Target** *SEM Long-term plan will be part of Academic Planning in 19-20*
Achieve enrolment that will maintain our corridor funding position.	
4.3 Complete a college-wide, multi-year MetaProject that will focus on growth, revenue, expenditure reduction and redesign to enhance quality and competitiveness while improving financial sustainability.	
4.3.1 Develop a Data Governance Framework to support enrollment targets, and SMA3 target metrics that allow for: - transparency of processes, open access to data, information and Business Intelligence - cross-functional input and coordination on 'how' data is structured and 'what' reports are generated through building standard repeatable processes - better enable decision-making; and - clarify operational responsibilities and accountabilities	**Met Target**

Operational Accomplishments for 2018/2019

1. Deliver Outstanding Student Learning and Experiences

- The first Women in Rocks day was held at Frost November 10th. The event is meant to introduce women to potential careers in the geosciences. Over 75 individuals signed up for the event.
- New Sustainable Waste Management Graduate Certificate had a successful first offering
- Human Resources & Counselling Services partnered to share student placement opportunities for F&HP, HR & BSW (Trent) involving development & facilitation of Mental Health & Wellness initiatives for students & employees.
- Accessibility Initiatives
  - Developed and published a Placement Guide for Students with Disabilities
  - Mentored Applied Project students in the development of an accessible wayfinding app for Android phones
- Increased Fleming College hosted course offerings though the Ontario Learn consortium. New programs include:
  - Autism and Behavioural Sciences launched on-line as a part time post graduate certificate with intake in Spring 2019.
  - Developed and launched the Leadership Business Sustainability online post graduate training program, accessing Low Carbon building grants and courses offered in Spring 2019.
  - Approved and developed the Restorative Practices and Alternative Dispute Resolution online post graduate program for launch in Fall 2019.
  - Partnered with University of Waterloo and Seneca College, to develop the Home Flood Risk Assessment online training program delivered in Winter 2019, first of its kind in the country supporting climate change adaptation measures.
- Developed a sustainable plan to increase offerings and develop high quality new courses in e-learning formats with a programming and credential types mix.
- Office of Applied Research and Innovation (OARI):
  - OARI helped SENRS Aquaculture researchers secure funding for multiple applied research projects and complete proposals for future research opportunities and capacity building.
  - OARI began working with SENRS Arboriculture to seek funding for an applied research project with a specialized engineering firm.
- Centre for Advancement of Water and Wastewater Technologies (CAWT):
  - Wrapped up 13 major multi-year applied research projects (totaling $1,948,046 in funding) funded through the Southern Ontario Water Consortium (SOWC) Advancing Water Technologies program in December 2018.
  - CAWT successfully completed its first NSF/ANSI 350 certification project.
  - CAWT scored very high (median score of 96%) in its March 2019 laboratory proficiency testing with the Canadian Association for Laboratory Accreditation.
  - The CAWT laboratory developed and added several new methods, including *Escherichia coliforms*/Total coliforms for membrane filtration, and several emerging contaminants (caffeine, trimethoprim, carbamazepine, ibuprofen, sulfamethoxazole, estrone, androstenedione, benzoylecgonine).
  - The CAWT laboratory has applied for licensing through Health Canada for having and using cannabinoids for scientific research purposes.
    - From 2018-2019, the CAWT served 54 clients (38 companies and 16 other clients), working on 58 projects with a range of applied research, testing, and verification services.

- The CAWT Technology Access Centre (funded through NSERC) was successfully renewed for another 5 year term ($1,750,000 in funding).
- CAWT published three peer-reviewed journal articles and was invited to contribute to an upcoming six volume "Handbook of Environmental Science" to be published in 2020.
- CAWT contributed to an important study on the impact of pharmaceuticals in the Great Lakes (with Pollution Probe, on behalf of Environment Canada) that will be released in April 2019.
- CAWT Manager & Senior Scientist Dr. Barbara Siembida-Losch earned her Professional Engineer licence and designation in November 2018.
- Barbara Siembida-Losch was an expert reviewer for the Ontario Centres of Excellence and the European Commission.
- CAWT Research Scientist/Faculty Dr. Gordon Balch served as a member of the Technical Subcommittee to write the new CAN/CSA-W203 Standard.
- An off-campus CAWT research and testing facility in Minden Hills was established through partnerships with NSF International, Ontario Clean Water Agency, and the Township of Minden Hills. The unique centre will be used for highly sought after CAN/BNQ 3680-600 and NSF 40 testing.

- HSAD - College supported student and faculty design exhibition opportunity in NY (invited by [Wanted Design] Brooklyn)
- HSAD - Graphic Design student community project for United Way – focus on addressing homelessness in the community
- HSAD – Museum Management and Curatorship created a permanent exhibition for the Peterborough Museum and Archives entitled "1920"s Kitchen/Peterborough's Icy Past"
- Provided peer mentoring support in 5 academic programs, career services, diversity as well as a number of pop up mentoring initiatives to increase peer to peer engagement and support
- Established space at our Sutherland campus to include a cluster of services in our main learning commons including Career Services, Student Experience, Diversity, Off campus housing and Student Rights and Responsibilities alongside International Student
- Launched a new chat and text based service (AskON) for library research and assignment support providing remote assistance to students outside regular service hours
- Expanded on line career services platform promoting tools like InterviewStream and Typefocus into the curriculum as an alternative to traditional modes of service delivery
- Developed a range of new career programs for international students including a workshop series, pop up advising and drop in services in the new international services space
- Established a new staffing model in tutoring services that included broad subject area specialties and a mandate to communicate and collaborate with faculty, resulting in greater team cohesion, better communication and a more predictable financial model
- Successful co-location of Health Services with Counselling Services at Sutherland Campus
- Health Services detailed student satisfaction survey completed with results indicating high levels of student satisfaction
- Created new trainings on new topics related to non-academic misconduct prevention (conflict resolution, empathy building, supporting peers, etc.) and increased the amount of trainings offered which led to a significant increase in participation numbers (56 workshops and over 2500 participants this year with 46 workshops and ~1500 participants last year).
- The Centre for Sustainable Municipalities (CSM):
  - Was invited to contribute to the creation of the next Canadian Infrastructure Report Card.
  - One new Application Developer (I/O position) was hired to meet the demands of new CSM projects.
  - Fleming College was successful in its application to create an NSERC Industrial Research Chair for Colleges (IRCC) in Predictive Water Network Analytics. The five year, $2M funding ($1 M NSERC + $1

M cash and in-kind from industry) will be used by Dr. Mohammadreza Moslemi, P.Eng. to work with Fleming's industry partners in this area.

- In the School of Health and Wellness
  - EST student, Lauren Graham, was awarded the Governor General Academic Medal, Collegiate Bronze, for academic excellence in 2018.
  - HIM program achieved accreditation through the Canadian Health Information Management Association (CHIMA) for an 8-year term in January 2019.
  - PRN program received highest level of program approval from the College of Nurses of Ontario (CNO) in 2018.
  - The Collaborative BScN program through the Trent / Fleming School of Nursing was accredited by CASN (Canadian Association of Schools of Nursing).
- Multiple programs within the Schools of Health & Wellness and Justice & Community Development are working on Inter-professional Education opportunities as well as incorporating more simulation in curriculum (e.g. Autism Awareness Experience on campus for one week with approximately 200 faculty, staff and students involved; full plan for inclusion of 'simulated participants' in curriculum; creation of sensory room for multiple program use)
- Successful program accreditations achieved in Paralegal and Health Information Management
- Prepared to launch Community Pharmacy Assistant and Emergency Management and Business Continuity in September 2019
- Officially moved into the newly renovated classrooms and labs in the A-wing to provide students with state-of-the-art equipment and learning facilities.
- Implemented refreshed program review and curriculum mapping process which culminated in over 250 faculty participating in a week of intensive mapping and collaboration.
- Created an online coordinator tool kit to aid new and existing coordinators in their role of supporting students
- The Pathways and Registrar's office received CTIG funding- $119 000.00 to revise Transfer Credit policy and practices, provide additional student pathway advising and supported the creation/and revision of degree completion agreements with UOIT and Trent University.
- Developed a new Program Efficacy Review model replacing the Integration Program Planning model to determine future program viability.

2. Collaborate and Prosper with our Communities

- Ground breaking for the Crayola/United Way/Fleming community garden initiative occurred on October 15th and the first steering committee meeting for the project was held on November 7th, faculty and technicians from the Sustainable Agriculture program and the Frost Principal/SENRS Dean are involved.
- A partnership between Fleming College and Kawartha Conservation has resulted in the reopening and creation of new trails at Pigeon River Headwaters Conservation Area. For two days in early November, staff from Kawartha Conservation were joined by 43 students in the Fleming College Outdoor Adventure Skills program, as well as two Fleming technicians and an instructor to reopen and reroute a section of the Pigeon River trail system.
- Blasting faculty, Bill Smith, has been interviewed and conducted some explosive experiments for a CBC National documentary and associated podcast ("Bomb on Board") investigating a 5 decade old cold case around a midair explosion of a plane in B.C.
- The 2018 Brian L. Desbiens Community Service Award recipients, Patty Thompson (internal recipient) and Janet McCue (external recipient), were recognized for their outstanding commitment to community volunteerism.

- Partnered with industry to deliver to over 65 local business and organizations in our regions. Delivered training projects to local community partners, including the Trent University, City of Peterborough, City of Kawartha Lakes, Northumberland, Town of Clarington, City of Ajax.
- Developed and delivered online training to Ontario Clean Water Agency to approx. 1,000 employees
- Fleming College collaborated with a number of partners, including the Haliburton Highlands Outdoor Association, on the Gould's Creek Brook Trout Restoration Project.
- Implemented a revised Program Advisory Review template to collect and report on Recommendations that honours the valuable contribution of our community members to our program vitality.
- Successful Women in Policing event held Saturday, March 23, 2019 bringing prospective students, faculty, community mentors and all levels of government together for the day
- HSAD – Partnered with Municipality of Dysart et al to build a timberframe shade structure for the new youth skate park
- Introduced the inaugural campus colour run at the Sutherland campus as a contributor to celebrate the ribbon cutting of the Rainbow Crosswalk
- Athletics and Recreation, Student Experience and SAC co hosted a Leadership in Sport day conference at the Peterborough Sport and Wellness Centre with a focus on diversity and inclusion
- Welcomed approximately 170 employers on campus through a new format for our job and career fairs changing the focus from campus to industries
- Established partnership with campus living centres to enhance housing options available to students in addition to traditional on campus housing
- Increased support to Indigenous students through the pilot of an Indigenous Student Transitions Advisor position and bi-weekly Indigenous staff visits to our Haliburton campus
- Worked with Kawartha Sexual Assault Centre (KSAC) to bring MENding to Fleming – A program to engage men in conversations about healthy masculinity and ways to address gender violence – once they complete the training the men volunteer at least 4 hours to the Office of SR&R
- In September 2018, opened an off-campus residence property at Severn Court through a partnership with Campus Living Centres. Resulted in a 10% increase in the number of beds for first year students.

3. Excel as an Organization

- Fleming was chosen to have an exhibit on our unique semester abroad in South Africa at the 2018 Higher Education Summit in November.
- Based on results of employee input, Wellness initiatives included on-campus fitness sessions (Frost & Sutherland), Mental Health workshops/certifications, Resiliency Program.
- Interpretation and implementation of the new Part-time (PT) Support Staff Collective Agreement which requires substantive amendments to existing PT terms and conditions and employee categories, corporate systems, operational procedures, and establishing an expanded labour relationship with OPSEU Local 351.
- Kicked off Fleming's Indigenous Cultural Safety training initiative by offering a half-day Leader workshop entitled Getting to the Roots of Tolerance, delivered by the Southwest Ontario Aboriginal Health Access Centre.
- Provided multi-day Leader professional development related to conflict management and mediation, certified by the University of Windsor Law School.
- Facilitated cross-functional, cross-College teams including the KPI Action Planning team and the team working to improve our faculty workloading processes.
- Planned and delivered an off-site Leader Day for all Leaders.
- Hosted Fleming's first college-wide contract faculty job fair where Academic Chairs interviewed prospective candidates in "speed-dating" style with the goal of building a talent pool of qualified candidates for

contract faculty assignments in the 2019/2020 academic year. Eighty (80%) of candidates interviewed were determined to be qualified or have the potential to be considered.

- Designed and implemented a college-wide Employee Engagement Survey, resulting in a 70% response rate (N=1138) and an engagement index of 73%.
- FDCT reported a high level of overall employee satisfaction through the engagement survey in 2018
- Completed a comprehensive review of the OARI division with recommendations for consideration and plan to be implemented.
- Office of Applied Research and Innovation (OARI):
  - OARI launched a new secure portal for the Research Ethics Board.
  - OARI created and hired a Research Expansion Project Facilitator (I/O position) to help promote and expand applied research into new areas at Fleming College.
  - The college's applied research success over the last five years inspired Colleges and Institutes Canada (CICan) to nominate Fleming College for the prestigious Governor General's Innovation Award.
  - OARI created and published Fleming College's first ever Applied Research Annual Review document, celebrating the college's many research achievements.
- Pharmacy Technician program coordinator and full-time faculty member, Amanda Mushynski, was elected as the Ontario representative for the Canadian Pharmacy Technician Educators Association (CPTEA).
- EST contract faculty member, Gwen Bennet, a full-time faculty member, was awarded the Vice President Academic Contract Faculty Teaching Award in 2018.
- Developed and implemented a pilot quality service training module "Promoting a Campus Culture of Quality Service", initially delivered to student services division, service leaders team and cross departmental group with strong results in evaluations supporting cross departmental sharing of ideas and strategies
- Introduced "Fleming Fridays", a campus spirit boosting in person and social media campaign to encourage students, staff, faculty and alumni to demonstrate their Fleming spirit on Fridays. Over 1,500 participated at the launch in April, 2019
- Introduced a new FT position, Manager, Indigenous Student Services
- Added new tech rich group study rooms, a workshop program room with a laptop lab, a new custom service desk, new furniture and digital signage to the library
- Successful RFP for vendor application of an Electronic Medical Record system with vendor selected, and summer design and training for staff in process
- Launched the Down Low on Getting Down: Healthy Relationship Workshop series (reframing sexual violence prevention by focusing on components and skills within healthy relationships)
- Realigned resources to expand the office of Off-campus Housing. Resulted in a 75% increase in hours available to support student housing needs and integrated services

4. Enhance Financial Health and Sustainability

- The College once again continued its focus on strengthening its financial sustainability; the College significantly over-delivered the $8.7 million budgeted surplus for the year – final surplus was $13.5 million.
- Implemented the "Fair Workplaces, Better Jobs Act" (Bill 148) including numerous systems and procedural changes to facilitate new public holiday and vacation pay entitlements, paid personal leave days, increased paystub information display requirements, and Equal Pay for Equal Work across all three employee groups, followed by repeal of many of those changes under the "Making Ontario Open for Business Act" (Bill 47).
- Designed and implemented a successful Voluntary Exit Option Plan for eligible employees.
- FD-CT has overall seen increases in total student registrations and number of courses delivered both in person, contract training and online delivery modes.

- Ontario Learn registration numbers are flat over a 2 year period, however our hosted online course registrations through Ontario Learn have increased year over year, demonstrating the value in investing in new course development.
- Successfully launched a new PRN intake in May 2018.
- The SPA and Clinic, run by students in the Esthetician and Massage Therapy programs, exceeded revenue targets for the 2018/2019 fiscal year
- Working with the Office of Sustainability, Food Services has been able to significantly reduce the amount of plastic straws, single-use beverage and single-use food containers on our campuses. This initiative has resulted in over 40% of our waste being diverted from landfill due to recycling and compost programs, reduction in the types of waste being thrown away and education on the impact of using plastic straws and single-use containers.

- Office of Applied Research and Innovation Business Development Activity (New Awards 2018-19)*

Funder/Program	Amount	Department
Research Grants	2,358,232	CAWT
Research Grants	1,050,000	CSM
Research Grants	50,000	OARI
Fee for Service/Cash Contributions**	390,580	CAWT
Fee for Service/Cash Contributions**	252,000	CSM
Fee for Service/Cash Contributions**	14,528	OARI
TOTAL	**$4,115,340**	

**funding to be spent according to individual grant conditions which may be over multiple fiscal years. Figures are indicative of business development success in 2018-2019.*

*** Cash contributions from industry to leverage grants equals $60,007 (CAWT), $252,000 (CSM) and $2,000 (OARI)*

Appendices

A. SMA Annual Report *to be provided in October*

B. Analysis of College's Financial Performance

C. Audited Financial Statements

D. KPI Performance Report – NOT AVAILABLE

E. Summary of Advertising and Marketing Complaints Received – *received no complaints*

F. Institutes of Technology and Advanced Learning (ITAL) reports - *Not Required*

G. List of Governors

H. President's Advisory Council 2018-2019 Annual Report

Appendix B

Analysis of College's Financial Performance

SIR SANDFORD FLEMING COLLEGE

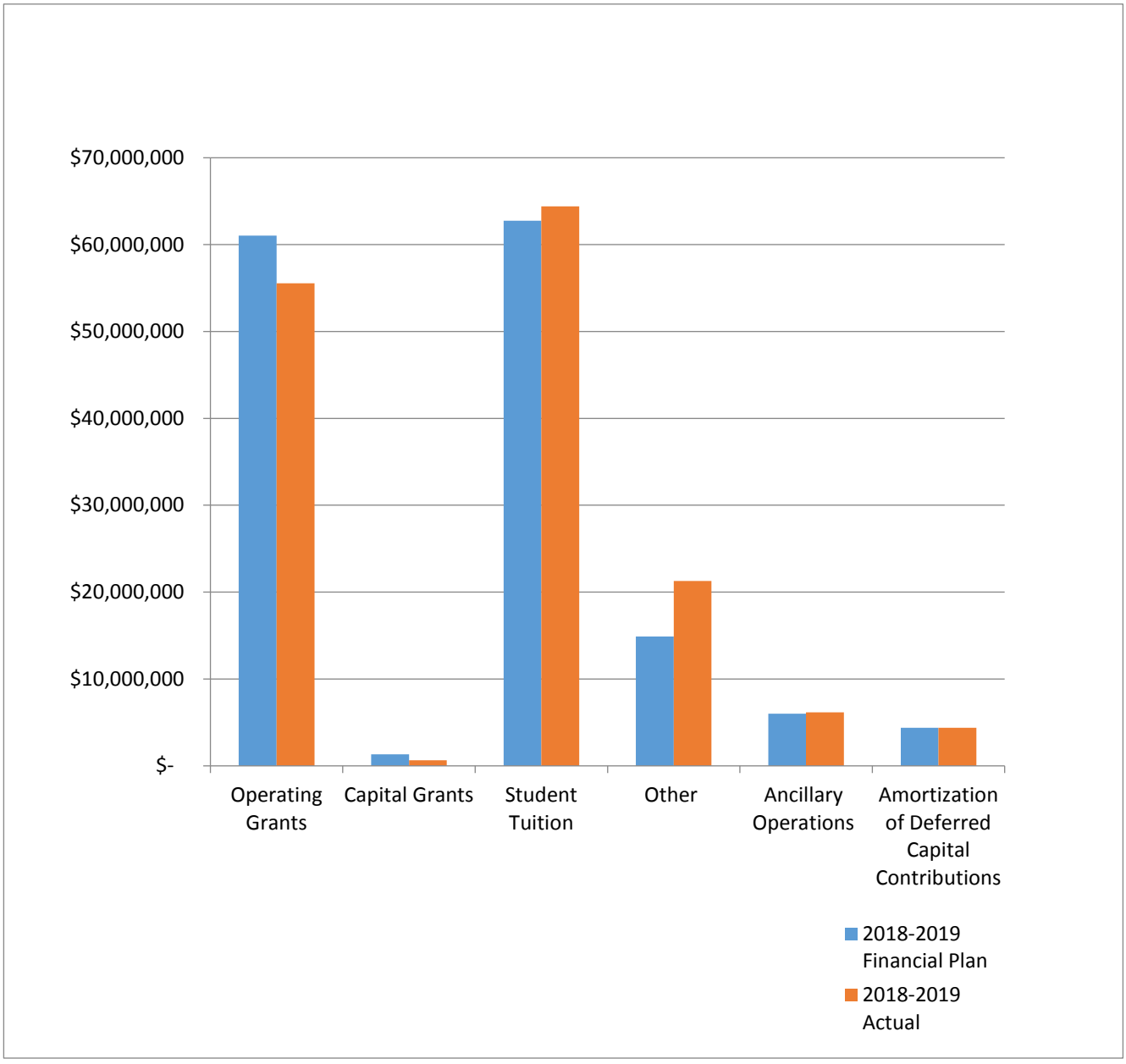
COMPARISON OF REVENUES & EXPENSES

	2018-2019 Financial Plan	2018-2019 Actual	2017-2018 Actual
REVENUE			
Operating Grants	$ 61,032,182	$ 55,562,768	$ 51,100,609
Capital Grants	1,334,698	647,665	647,665
Student Tuition	62,762,157	64,392,370	45,328,043
Other	14,889,251	21,287,185	19,159,851
Ancillary Operations	6,002,025	6,147,443	5,595,360
Amortization of Deferred Capital Contributions	4,392,500	4,397,263	4,103,755
	150,412,813	152,434,694	125,935,283
EXPENDITURES			
Salary, Wages and Benefits	$ 86,577,575	$ 87,804,138	$ 71,999,185
Service and Supplies	31,203,535	29,783,505	25,942,155
Utilities, Maintenance and Taxes	12,204,730	10,860,395	10,367,865
Other Expense	4,345,142	3,438,621	3,481,919
Amortization of Capital Assets	7,322,500	7,069,656	6,331,126
	141,653,482	138,956,315	118,122,250
Excess of revenue over expenditure	$ 8,759,331.0	$ 13,478,379.0	$ 7,813,033.0

Analysis of College's Financial Performance

SIR SANDFORD FLEMING COLLEGE

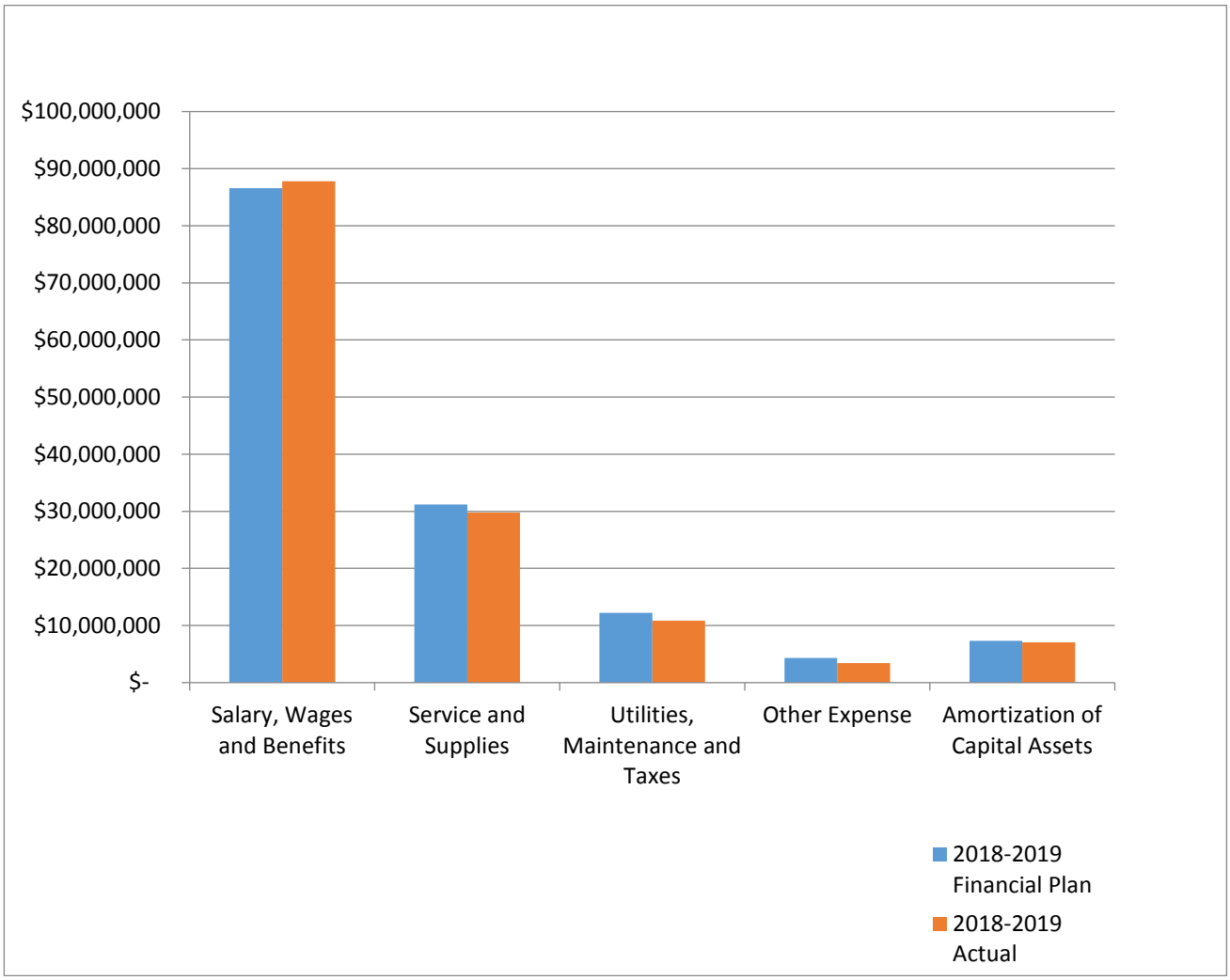
COMPARISON OF REVENUES - 2018-2019 BUDGET TO ACTUAL



Analysis of College's Financial Performance

SIR SANDFORD FLEMING COLLEGE

COMPARISON OF EXPENDITURES - 2018-2019 BUDGET TO ACTUAL



Appendix C

Audited Financial Statements

https://flemingcollege.ca/PDF/Fleming-College-Financial-Report-2019.pdf

Appendix G

https://flemingcollege.ca/about-fleming/board-of-governors

2018-2019 Board of Governors of Sir Sandford Fleming College

Appendix H

President's Advisory Council 2018-2019 Annual Report

SOURCE

- Minister's Binding Policy Directive, *Governance and Accountability Framework* (revised Sept 2010)
- By-law 1-102, s.38: *Advisory Councils – College Council*
- Board Policy 1-102K, *Advisory College Council*

Insert Appendix

Fleming College

Business Plan

2019-2020

Introduction

Fleming College is at the dawn of a new era. During the 2019-2020 fiscal year, we will launch a completely new strategic plan which will define our path for the next five years.

Our new path is focused on meeting the needs of the labour market through the delivery of exceptional-quality educational experiences that produce highly skilled and uniquely prepared graduates.

Our first year will be a foundational one that will set in place the people and resources to deliver against our bold plan. This will include developing a "Jobs First" academic plan supported by new programs, new program delivery options and initiatives to support an optimal enrolment mix of domestic and international students.

The new plan will identify changes that will re-shape the student experience at Fleming and support the achievement of students' goals at all stages of life, while also improving our retention and graduation rates.

We will engage our communities through new outreach projects such as the Fleming Jobs Council that will seek direction on programs and skills from external advisors. In addition, we will aggressively pursue opportunities to work with employers, community groups, education partners and government to help our communities become preferred destinations for not only learning, but for living and working as well.

Our success is dependent on our people. We will invest in, and empower our employees to use their extensive experience and talent to take Fleming forward on this exciting new path

Our Vision

Creating Prosperity and transforming communities through education and innovation.

Our Mission

To empower our student with the innovative education, research and real-world experiences they need to build better lives, better communities and a better world.

Our Values

We will achieve our vision and mission by adhering to our values, which are to be:

- *Responsive,*
- *Innovative,*
- *Collaborative,*
- *Inclusive, and*
- *Accountable*

Goals of the Business Plan Priorities 2019-2020

The 2019-2020 Business Plan highlights key objective from a variety of Action Plans in order to achieve goals of the Strategic Plan, Academic Plan and our Strategic Mandate Agreement. We have aligned our Business Plan objectives to the metric goals of the Strategic Mandate Agreement 2017 to 2020. Through our Business Plan the College will start to achieve the commitments of our 2019-2024 Strategic Plan:

1. We will be focused on the needs of students and employers in the labour market.
2. We will be true partners in our communities.
3. We will empower our staff and faculty.
4. We will embrace technology and digitization.
5. We will be a welcoming place for all.

Strategic Mandate Agreement

As with all Colleges and Universities in Ontario, Fleming's Strategic Mandate Agreement 2017–20 (SMA2) will expire March 31, 2020. This final business plan year of the SMA2 will see great change and adaptation as the Post-Secondary Education sector changes its funding model. Colleges and Universities in the provincial will spend this year wrapping up SMA2 projects and achievements while developing new SMA3 goals and objectives under a new performance-based funding model.

The 2019-2020 Business Plan Objectives continue to be aligned with the SMA2 metrics to ensure we have met our agreement obligations.

Key Business Plan Objectives by Strategic Plan Goal

This 2019-2020 Business Plan reflects the target range of the projected metrics in the SMA2. It is important to note, that the metrics and targets will be significantly different with the development of the new SMA3.

2019-2020 Objectives	2017-2020 Strategic Mandate Agreement (SMA2) Metric	17-18 Actual	19-20 Target Range
1. WE WILL BE FOCUSED ON THE NEEDS OF STUDENTS AND EMPLOYERS IN THE LABOUR MARKET.			
1.1 Create a dynamic new Jobs-First Five-Year Academic Plan that builds on our strengths and has a laser-focus on quality programs, skills development and flexible delivery models that will meet the needs of the job market of today and the future.			
1.1.1 Create a 2019-2024 Academic Plan by the end of December 2019, that aligns with the new 2019-2024 Strategic Plan for the College.			
1.1.2 Create a 2019-2024 Strategic Enrolment Management Plan that is driven by the labour market, aligns with the new 2019-2024 Academic Plan and includes goals related to International and Domestic enrolment mix.	Domestic Projected Funding-Eligible Enrolment (Head Count)	5508	5370
	International Projected Funding-Eligible Enrolment (Head Count)	1012	688
1.1.3 Launch new eLearning Offerings: 1) three post-graduate certificates. 2) one local board certificate. 3) at least five certificates of existing courses. 4) Develop policies, structures, and practices to streamline admissions processes while meeting quality standards for these post-graduate certificates.	Total number of **registrations** in ministry-funded courses offered at institution in eLearning formats	7,076	7000 - 7500
	Total number of ministry-funded **courses** offered at institution in eLearning formats	658	750 - 800
	Total number of ministry-funded **programs** offered at institution in eLearning formats	22	19 - 20
1.1.4 Develop a renewed Continuing Education / Contract Training plan to revitalize program & course offerings, serving as a comprehensive resource for community members, the local workforce and employers.			
1.2 Establish a Fleming Jobs Council that will include external program advisors who can share current job market trends, develop labour market data and provide a regular feedback loop between Fleming, employers and students to ensure Fleming graduates are sought after and that programing evolves as the job market changes. Industry has a voice and we intend to listen.			
1.2.1 Develop 5 new programs with various delivery modes including digital (hybrid) delivery. The programs will be responsive to community needs and future trends for approval by the Board of Governors during the 2019-2020 year.			
1.2.2 Review existing programs with the new Program Efficacy Review model to determine program relevancy for current and future job markets, on-going program demand and quality.			

2019-2020 Objectives	2017-2020 Strategic Mandate Agreement (SMA2) Metric	17-18 Actual	19-20 Target Range
1.3 Establish a new Student-Employers Partnerships Network that will increase the availability of hands-on experience through co-ops, internships, placements, apprenticeships and other types of experiential learning that are so essential to ensuring our graduates are job ready, or ready to create their own jobs.			
1.3.1 Develop a plan to establish a centralized office dedicated to career development/opportunities including applied research and experiential learning, serving as a comprehensive resource for students, employers and faculty.	Number of students in experiential learning programs	2207	2472 - 2558
	# of programs with Work Integrated Learning (WIL)	84	86-87
	Student satisfaction with hands-on learning	74.10%	80.5% - 81%
	Student satisfaction with Career Advising	50%	56.5& - 56.9%
	Number of externally funded applied research projects	49	30 - 40
	Number of partnerships/ collaborations with community/industry firms	99	30
	Number of hours college staff involved in applied research	28505	30,000 - 32,000
	Number of students employed in externally funding applied research projects	15	20-25
	Amount of external funding per year	$1.7M	$3M - 3.5M
1.3.2 Review and research opportunities for an expanded Fleming presence in downtown Peterborough and Haliburton communities, which will incorporate new housing options for students and state-of the-art labs, enterprise space and unique programming.	Student satisfaction with hands-on learning	74.10%	80.5% - 81%
1.4 Create an Advanced Skills Training Program modeled after those in Europe and the example of other global leaders in this area that will see students divide their time between the classroom and apprenticeship-style training in the workplace to better prepare students for jobs while at the same time creating a ready-made workforce for employers.			

2019-2020 Objectives	2017-2020 Strategic Mandate Agreement (SMA2) Metric	17-18 Actual	19-20 Target Range
1.4.1 Research and identify funding opportunities for advanced skills-training. This objective will include the investigation and possible hire of a Grant Writer position so that Fleming is able to apply for more grants and other funding opportunities.			
1.5 Develop a Student Success Strategy that will increase retention and graduation rates as well as employment by working together to develop individual success plans to help people identify and meet their goals at all stages of their life. The strategy will touch high school students, first-time postsecondary students, those returning to college or work after a gap, graduates looking for their first jobs and those looking for the kind of life-long learning that will allow them to progress in and change careers.			
1.5.1 Pilot a New Student Success Intervention Program, to proactively help students get on the road to success as they begin their first semester leading to successful program completion and graduation.	Retention rates (Yr1 to Yr2)	76.0%	80.25% - 80.5%
	Graduation rate	69.5%	69.25% - 69.5%
1.5.2 Design a Student Success Support model that includes student navigator positions to help students from entry to graduation and employment. Includes an ongoing 360 degree 'service effectiveness survey' assessment.	Retention rates (Yr1 to Yr2)	76.0%	80.25% - 80.5%
	Graduation rate	69.5%	69.25% - 69.5%
2. WE WILL BE TRUE PARTNERS IN OUR COMMUNITIES			
2.1 Be the go-to institution for quality new and future-oriented education for our community, Ontario and beyond. We will seek out opportunities to partner with industry and governments at all levels to develop new programs that support the economy, and provide lifelong learning as employees and entrepreneurs adapt to the evolving workplace.			
2.1.1 Working with MTCU and Employment Ontario to deliver 1 to 2 projects by March 31, 2020.			
2.2 We will diversify our streams of funding so that we will remain a sustainable public institution on which our students and communities rely both as an employer and a contributor to our local economies, even as governments grapple with ways to tackle their deficits and the school-age population decreases.			
2.2.1 Strengthen Fleming's financial health and sustainability to ensure new/existing programs, services and infrastructure are supported, funded and optimized while also generating the Ministry minimum direction for an operating surplus of at least 1.5% of total revenues.	Annual surplus (deficit)	$1M	$13.5M
	Accumulated surplus (deficit)	$13.09M	$33.4M
	Net income to revenue ratio	1.60%	8.84%
	Net assets to expense ratio	83.09%	86.92%
	Quick ratio	1.58	1.95%
	Debt servicing ratio	1.53%	0.90%

2019-2020 Objectives	2017-2020 Strategic Mandate Agreement (SMA2)		
	Metric	17-18 Actual	19-20 Target Range
	Total debt to assets ratio	27.55%	26.5%

2.3 We will create an Applied Research Development Strategy to expand research activities into all Fleming programs so that we are stretching and contributing to innovation in Canada across all fields, while also finding solutions to issues with which our own municipalities are grappling.			
2.3.1 Increase applied research activity in programs such as: Aquaculture, Customs Border Services, Biotechnology, and other programs ready to pursue research opportunities in the 2019-2020 year.	Number of externally funded applied research projects	49	30 - 40
	Number of partnerships/ collaborations with community/industry firms	99	30
	Number of hours college staff involved in applied research	28505	30,000 - 32,000
	Number of students employed in externally funding applied research projects	15	20-25
	Amount of external funding per year	$1.7M	$3M - 3.5M

2.4 We will enhance pathways for students between Fleming College and Trent University and other post-secondary institutions so that students, regardless of where they start their post-secondary education, can receive the customized education they need to thrive and adapt in the workplace.

2.4.1 Explore and develop new and enhanced pathways for students, effective for the Winter 2020 semester, between Fleming College and Trent University, particularly in the School of Business.

2.5 We will expand our partnerships to boost community innovation, by partnering with such organizations as Peterborough and the Kawarthas Economic Development and initiatives like the Innovation Cluster – Peterborough and the Kawarthas and leveraging the many talents of our alumni, to support small business and entrepreneurs, who are playing an increasing role in the economy of the future.

2.5.1 Establish MOUs with the Innovation Cluster, Peterborough & the Kawarthas Economic Development, local Chambers of Commerce and the Workforce Development Board (WDB).

3. WE WILL EMPOWER OUR STAFF AND FACULTY.

2019-2020 Objectives	2017-2020 Strategic Mandate Agreement (SMA2) Metric	17-18 Actual	19-20 Target Range
3.1 We will support an Employee-Management Engagement Strategy to work toward a positive and energized workplace culture that respects and values the opinions and ideas of all employees, provides the tools required and removes obstacles so that together we can provide the best education, leadership and research practices needed to fulfil our mission.			
3.1.1 Develop an Employee-Management Engagement Action Plan in response to the 2018 Employee Engagement Survey results.			
3.2 Fleming will be recognized for the first time as one of Canada's top employers because of our new focus on a shared culture of quality, respect, transparency, accountability, collaboration accessibility and inclusion.			
3.2.1 Research and identify top employer designation programs to create recommendations and a plan for Fleming to participate in such a program.			
3.3 We will invest in our people by creating an Employee Success Strategy that will identify and provide dedicated professional development opportunities, high skills training and the equipment and technology needed to provide the best possible experience for students and staff.			
3.3.1 Develop a College-wide Professional Development Plan that will identify opportunities and training needs as well as provide a budget and schedule plan for implementation.			
3.3.2 Achieve all approved capital investment priorities as included in the 2019-20 Capital plan. Most notably: 1) full completion of all GGCRP project deliverables on schedule, and within the Board and Ministry–approved budget of $6.2M; 2) Completion of an integrated college-wide campus master space plan that supports the College's long-term strategic planning needs; 3) other projects as identified in 2019-2020 budget.	Student satisfaction with facilities	65.8%	76% - 79.75%
3.3.3 An external review leading to best-practice recommendations of core business processes, particularly within the Registrar's Office (and other integrated departments) to improve the student experience, efficiencies and accountabilities. Implementation of prioritized improvements to begin in the 2019-2020 year.	Overall student satisfaction rate	69.7%	79.25 - 79.5%

2019-2020 Objectives		2017-2020 Strategic Mandate Agreement (SMA2)		
		Metric	17-18 Actual	19-20 Target Range
3.3.4	Review and implement an improvement plan for HR technology systems and related Business Processes.			
3.3.5	Implement a college asset management framework aligned with the strategic plan in order to plan asset requirements on a multi-year 'lifecycle' horizon rather than the current annual planning process.	Net assets to expense ratio	83.09%	86.92% (18-19 Actual)

4. WE WILL EMBRACE TECHNOLOGY AND DIGITIZATION.

4.1 Create a Tech Development Centre to conduct an inventory of the technology and digital tools that currently exists at Fleming and consult with industry to guide the expansion of technology for faculty and students so that both are using the most up-to-date technology to meet the expectations of modern workplaces.				
4.1.1	Redesign of the College network to align with current technology and the replacement of hardware that is supported by a support contract.	Student satisfaction with education technology used to assist teaching and learning in your program	85.40%	63% - 65%
4.1.2	Migrate all outstanding three divisions to the Office 365 cloud.	Student satisfaction with facilities	65.8%	76% - 79.75%
4.1.3	Continue to build on the cyber security Report in order to build a defined team with roles both within the college and provincial partners by developing policies, incident response planning, and establishing internal audit mechanisms.	Student satisfaction with facilities	65.8%	76% - 79.75%
4.2 Use the latest data-driven technology to create a Job Market Analytics program to improve our use of data and analytics to better understand the job market and outcomes for graduates so that program development will be informed by research.				
4.2.1	Create labour market profiles for all existing, proposed and new programs.			
4.3 Implement a Digital and Communications Transformation Strategy to review our website, our digital and marketing channels and our use of automation so that we can improve business processes, improve digitization and engage with our audiences through effective communications and marketing. We will connect employees and students at all of our campuses through a common branding and visual identity.				

2019-2020 Objectives	2017-2020 Strategic Mandate Agreement (SMA2) Metric	17-18 Actual	19-20 Target Range
4.3.1 Re-Brand Fleming College into a single brand system incorporating all college schools and services by re-defining the Fleming College value proposition for all key stakeholders.			
4.3.2 Deliver a class-leading digital strategy through the college website that offers an exceptional user experience, providing easy and intuitive access to information drawn from (and to) other Fleming digital service & data platforms.			
5. WE WILL BE A WELCOMING PLACE FOR ALL.			
5.1 Establish a Student Experience Strategy to ensure an outstanding student experience and success for students upon graduation through improved career and support services, renewal of our facilities and a focus on student life and well-being on campus and in our communities.			
5.1.1 Provide students with the ability for greater course selection and flexibility by re-configuring our IT system and business processes.			
5.1.2 Improve service for students and other internal customers through training modules focused on quality service initiatives including, but not limited to service competencies, services supporting a diverse population and campus pride.	Student satisfaction with services	55.5%	68% - 68.5%
5.2 Strengthen our relationship with Indigenous Peoples by helping to create opportunities in post-secondary education, and actively participating in the process of reconciliation by ensuring all students and staff gain a deeper understanding and appreciation of Indigenous peoples, their ways of knowing and histories.			
5.2.1 Review and assess service areas utilizing the new Indigenous Equity Assessment tool created by a sub-committee of the Fleming Indigenous Education Council. Through this assessment, a final report will identify areas of opportunity for increased access and ensuring all campus services foster a culturally safe environment and service for Indigenous learners.	Number of Indigenous students enrolled at institution	290	200 - 205
	Employment rates for Indigenous students	69.0%	70% - 70.5%
	Overall student satisfaction rates for Indigenous students	64.3%	77.85% - 77.9%

2019-2020 Objectives	2017-2020 Strategic Mandate Agreement (SMA2)		
	Metric	17-18 Actual	19-20 Target Range
5.2.2 Commitment to Indigenous Protocol and TRC through the hiring of an Indigenous Studies Academic Chair. Develop external partnerships with an Indigenous community to provide post-secondary education and training.	Overall Graduate Satisfaction Rates for Indigenous students	78.1%	82.25% - 82.5%
5.3 Create an Internationalization Strategy that includes expanded spaces for international students, creates study abroad opportunities for domestic students, attracts talented faculty from overseas and builds on supports to create an environment where students from other nations can succeed and feel welcomed and where domestic and international students learn from each other's culture and political, social and economic perspectives.			
5.3.1 Create an Internationalization Strategy that includes student supports and appropriate space allocation. The strategy will align with a new Strategic Enrolment Management Plan that includes goals related to International and Domestic enrolment mix..			
5.4 Ensure we are meeting the needs of diverse populations among our employees and students in culturally safe and inclusive ways, and providing an accessible campus and accessible learning services, supports for under-represented groups and for those experiencing mental health challenges.			
5.4.1 Review existing resources and convene a Task Force to better support those who experience sexual violence. The Task Force will identify deliverables that reflect an increased commitment to prioritize sexual violence prevention initiatives, including enhanced educational programming, and resources that contribute to a safe campus community.	Student Satisfaction with services	55.50%	68-68.5%

SUBMISSION TO THE BOARD OF GOVERNORS

Agenda Item xx

Report Title: Internally Restricted Net Assets
Report to: Public Board Meeting **Meeting Date: May 22, 2019**
Requested Action: Decision / Approval
Prepared and Submitted by: Brian Baker, Vice President Corporate Services; Sue Sanders, Director Finance

OVERVIEW / BACKGROUND

The Statement of Financial Position as well as the Statement of Operations is comprised of the College's general operations as well as its ancillary operations. A portion of the ancillary operations is included in internally restricted net assets, which requires Board of Governors approval to increase or decrease. The Sports Field Complex agreement between the City of Peterborough and the College requires annual contributions to a reserve fund for future capital repairs and improvements and is also included in internally restricted net assets.

As at March 31, 2019, the internally restricted net assets included $ 886,000, representing cumulative residence surplus from prior years adjusted for College funds invested in residence capital assets, as well as $40,000 representing the Sports Field Complex reserve.

ANALYSIS / PROPOSED OPTIONS

The scope of analysis will depend on the nature of the issue but may include Legal Impact; Financial/HR Implications; Student Impact; Stakeholder Implications. Pros and Cons for each option should be identified as appropriate.

During the 2018-2019 fiscal year, the residence operations generated an additional $232,000 to be internally restricted. This amount represents $622,000 generated by operations, offset by $390,000 when adjusted to account for the cash impact of the principal repayments and capital purchases during the year. The Internally Restricted Net Assets for the residence will total $1,118,000 as of March 31, 2019, should the current year internal restriction be approved.

The Sports Field Complex became operational during the 2014-2015 fiscal year and, as part of the agreement with the City of Peterborough, a minimum of $10,000 per year is to be restricted by both parties for future capital repairs and improvements. The balance of internally restricted net assets will be $50,000 at March 31, 2019 with the additional $10,000 to be restricted in 2018-2019. The City of Peterborough's cumulative contribution of $50,000 is in the liabilities at March 31, 2019 and will be transferred to revenue when future expenses are incurred.

RISK CATEGORY

Select all that apply *(to check a box, double click; from drop-down menu, select "checked" under Default Value)*

☐ External Environment ☐ Internal Environment ☐ Financial ☐ Human Resources
☐ Information Technology ☐ Legal ☒ Operational ☐ Strategic ☐ N/A

The Sports Fields are less than five years old and with both the City and College contributions to March 31, 2019, a total of $100,000 will be set aside for future costs. In the early years of the agreement the risk of repairs is low, making the reserve reasonable at this point in time.

The agreement sets out $10,000 as the minimum annual contribution, but allows the joint committee to increase the annual contributions in the future if necessary. The reserve is monitored in relation to the condition of the Sports Field Complex on an ongoing basis.

RECOMMENDATION AND/OR MOTION *(i.e. Receive the update on Winter Enrolment for information. Refer the matter to Committee for further investigation. Approve the proposed xyz program of instruction.)*

It is recommended the Board of Governors of Sir Sandford Fleming College:

THAT the Board of Governors of Sir Sandford Fleming College approve the increase in Internally Restricted Net Assets by $232,000 for the purposes of residence and other direct student services, and by an additional $10,000 for the purpose of future Sports Field Complex capital repairs and improvements.

SUPPORTING DOCUMENTATION

NA

SUBMISSION TO THE BOARD OF GOVERNORS

Agenda Item xx

Report Title: 2018-2019 Audited Financial Statements
Report to: Public Board Meeting **Meeting Date: May 22, 2019**
Requested Action: Decision / Approval
Prepared and Submitted by: Brian Baker, Vice President Corporate Services; Sue Sanders, Director Finance

OVERVIEW / BACKGROUND

A report to recommend approval of the Audited Financial Statements for 2018-2019 as presented in the Finance and Audit Committee scheduled May 22, 2019 wherein the Committee will review the Audited Financial Statements for 2018-2019 and recommend for Board approval.

ANALYSIS / PROPOSED OPTIONS

The scope of analysis will depend on the nature of the issue but may include Legal Impact; Financial/HR Implications; Student Impact; Stakeholder Implications. Pros and Cons for each option should be identified as appropriate.

The 2018-2019 fiscal year resulted in an increase in total net assets of $13,610,175 due to an excess of revenue over expenditures of $13,478,379, additional endowment contributions of $125,796 and a decrease of $6,000 in the market value of the derivative liability during the year.

For the fiscal year ended March 31, 2019, the financial health indicators are all within the acceptable benchmark targets. The specific ratio results are as follows:

Ratio	Benchmark	Actual March 31/19	Pass/Fail
Annual Surplus	> $0	$ 13,478,379	Pass
Accumulated Surplus	> $0	$ 33,403,585	Pass
Quick Ratio	>= 1.0	1.95%	Pass
Total Debt to Asset Ratio	<= 35%	26.50%	Pass
Debt Servicing Ratio	<= 3%	0.90%	Pass
Net Assets to Expense Ratio	>= 60%	86.92%	Pass
Surplus (Deficit) to Revenue Ratio	>= 1.5%	8.84%	Pass

RISK CATEGORY

Select all that apply *(to check a box, double click; from drop-down menu, select "checked" under Default Value)*

☐ External Environment ☐ Internal Environment ☐ Financial ☐ Human Resources
☐ Information Technology ☐ Legal ☒ Operational ☐ Strategic ☒ N/A

RECOMMENDATION AND/OR MOTION *(i.e. Receive the update on Winter Enrolment for information. Refer the matter to Committee for further investigation. Approve the proposed xyz program of instruction.)*

It is recommended the Board of Governors of Sir Sandford Fleming College:

KPMG will remove “DRAFT” and issue final Audited Financial Statements once approval has been received. These statements will then be provided to the Ministry of Training, Colleges and Universities; the statements also form part of the College’s Annual Report and will be posted to the College website.

THAT the Board of Governors of Sir Sandford Fleming College approve the 2018-2019 Audited Financial Statements indicating Net Assets as at March 31, 2019 of $39,945,576.

SUPPORTING DOCUMENTATION

- 2018-2019 Audited Financial Statements, draft 10, dated May 10, 2019
- 2018-2019 Report of the Vice President Corporate Services

DRAFT #10
May 10, 2019

Financial Statements of

SIR SANDFORD FLEMING COLLEGE OF APPLIED ARTS AND TECHNOLOGY

Year ended March 31, 2019

INDEPENDENT AUDITORS' REPORT

To the Board of Governors of Sir Sandford Fleming College
of Applied Arts and Technology

Opinion

We have audited the financial statements of Sir Sandford Fleming College of Applied Arts and Technology (the Entity), which comprise:

- the statement of financial position as at March 31, 2019
- the statement of operations for the year then ended
- the statement of changes in net assets for the year then ended
- the statement of cash flows for the year then ended
- the statement of remeasurement gains and losses for the year then ended
- and notes to the financial statements, including a summary of significant accounting policies

(Hereinafter referred to as the “financial statements”).

In our opinion, the accompanying financial statements present fairly, in all material respects, the financial position of Sir Sandford Fleming College of Applied Arts and Technology as at March 31, 2019, and its results of operations, its changes in net assets, its cash flows and its remeasurement gains and losses for the year then ended in accordance with Canadian public sector accounting standards.

Basis for Opinion

We conducted our audit in accordance with Canadian generally accepted auditing standards. Our responsibilities under those standards are further described in the “***Auditors’ Responsibilities for the Audit of the Financial Statements***” section of our auditors’ report.

We are independent of the Entity in accordance with the ethical requirements that are relevant to our audit of the financial statements in Canada and we have fulfilled our other ethical responsibilities in accordance with these requirements.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Responsibilities of Management and Those Charged with Governance for the Financial Statements

Management is responsible for the preparation and fair presentation of the financial statements in accordance with Canadian public sector accounting standards, and for such internal control as management determines is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the financial statements, management is responsible for assessing the Entity's ability to continue as a going concern, disclosing as applicable, matters related to going concern and using the going concern basis of accounting unless management either intends to liquidate the Entity or to cease operations, or has no realistic alternative but to do so.

Those charged with governance are responsible for overseeing the Entity's financial reporting process.

Auditors' Responsibilities for the Audit of the Financial Statements

Our objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditors' report that includes our opinion.

Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with Canadian generally accepted auditing standards will always detect a material misstatement when it exists.

Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of the financial statements.

As part of an audit in accordance with Canadian generally accepted auditing standards, we exercise professional judgment and maintain professional skepticism throughout the audit.

We also:

- Identify and assess the risks of material misstatement of the financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinion.

  The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.

- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Entity's internal control.
- Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by management.
- Conclude on the appropriateness of management's use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Entity's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in our auditors' report to the related disclosures in the financial statements or, if such disclosures are inadequate, to modify our opinion. Our conclusions are based on the audit evidence obtained up to the date of our auditors' report. However, future events or conditions may cause the Entity to cease to continue as a going concern.
- Evaluate the overall presentation, structure and content of the financial statements, including the disclosures, and whether the financial statements represent the underlying transactions and events in a manner that achieves fair presentation.
- Communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit.

DRAFT

Chartered Professional Accountants, Licensed Public Accountants

Vaughan, Canada

SIR SANDFORD FLEMING COLLEGE OF APPLIED ARTS AND TECHNOLOGY

DRAFT Statement of Financial Position

March 31, 2019, with comparative information for 2018

	2019	2018
Assets		
Current assets:		
Cash	$ 17,876,844	$ 25,443,420
Short-term investments (note 3)	40,817,577	18,183,912
Ministry of Training, Colleges and Universities receivables	5,489,537	5,432,774
Accounts receivable	5,759,591	5,192,954
Inventory and prepaid expenses	1,762,657	1,668,560
	71,706,206	55,921,620
Restricted investments for endowments, bursaries and other (notes 2 and 3)	10,055,958	9,422,108
Capital assets (note 4)	122,779,523	112,934,801
	$ 204,541,687	$ 178,278,529

	2019	2018
Liabilities, Deferred Contributions and Net Assets		
Current liabilities:		
Accounts payable and accrued liabilities	$ 25,499,637	$ 24,304,714
Accrued payroll and employee benefits	12,829,415	10,882,523
Ministry of Training Colleges and Universities grants received in excess of entitlements	2,082,805	1,853,951
Deferred revenue	19,267,070	17,079,339
Current portion of long-term debt (note 6)	1,054,731	1,020,263
	60,733,658	55,140,790
Long-term debt (note 6)	8,990,388	10,045,119
Deferred derivative liability (note 6)	86,000	92,000
Post-employment benefits and compensated absences (note 7)	3,987,000	3,910,000
	13,063,388	14,047,119
Deferred contributions:		
Bursaries and other	3,427,967	2,919,913
Deferred capital contributions (note 5)	87,371,098	79,835,306
	90,799,065	82,755,219
Net assets:		
Invested in capital assets (note 8)	26,639,643	22,876,747
Internally restricted (note 14)	1,168,000	926,000
Unrestricted net assets:		
Operating	14,803,942	5,359,459
Post-employment benefits and compensated absences	(3,987,000)	(3,910,000)
Vacation pay accrual	(5,221,000)	(5,327,000)
	5,595,942	(3,877,541)
Accumulated remeasurement losses	(86,000)	(92,000)
Restricted for endowment	6,627,991	6,502,195
	39,945,576	26,335,401
Commitments (note 15)		
	$ 204,541,687	$ 178,278,529

See accompanying notes to financial statements.

On behalf of the Board of Governors:

_____ Chair of the Board of Governors

_____ President

SIR SANDFORD FLEMING COLLEGE OF APPLIED ARTS AND TECHNOLOGY

DRAFT Statement of Operations

Year ended March 31, 2019, with comparative information for 2018

	2019	2018
Revenue:		
Student tuition	$ 64,392,370	$ 45,328,043
Ministry of Training, Colleges and Universities grants and reimbursements	56,210,433	51,748,274
Other (note 9)	21,287,185	19,159,851
Ancillary operations	6,147,443	5,595,360
Amortization of deferred capital contributions (note 5)	4,397,263	4,103,755
	152,434,694	125,935,283
Expenditures:		
Salaries	72,968,448	59,356,680
Benefits	14,835,690	12,642,505
Contract services and other	14,140,726	11,218,501
Instructional support	8,841,070	9,274,691
Amortization of capital assets	7,069,656	6,331,126
Plant and security	5,484,217	5,023,418
Telephone, legal and audit	3,346,755	2,882,706
Utilities	3,219,128	3,574,948
Bursaries	2,696,708	2,346,498
Travel and professional development	2,016,771	1,536,052
Advertising	1,438,183	1,030,205
Rental and taxes	1,329,295	1,054,039
Equipment maintenance	827,755	715,460
Other	384,077	744,356
Interest on long-term debt	357,836	391,065
	138,956,315	118,122,250
Excess of revenue over expenditures	$ 13,478,379	$ 7,813,033

See accompanying notes to financial statements.

SIR SANDFORD FLEMING COLLEGE OF APPLIED ARTS AND TECHNOLOGY

DRAFT Statement of Changes in Net Assets

Year ended March 31, 2019, with comparative information for 2018

						2019	2018
	Invested in capital assets (note 8(a))	Internally restricted (note 14)	Restricted for endowment	Unrestricted	Accumulated remeasurement gains (losses)	Total	Total
Net assets, beginning of year	$ 22,876,747	$ 926,000	$ 6,502,195	$ (3,877,541)	$ (92,000)	$ 26,335,401	$ 18,434,082
Excess of revenue over expenditures (note 8(b))	(2,635,497)	–	–	16,113,876	–	13,478,379	7,813,033
Endowment contributions	–	–	125,796	–	–	125,796	31,286
Net change in investment in capital assets (note 8(b))	6,398,393	–	–	(6,398,393)	–	–	–
Interfund transfer	–	242,000	–	(242,000)	–	–	–
Remeasurement gains	–	–	–	–	6,000	6,000	57,000
Net assets, end of year	$ 26,639,643	$ 1,168,000	$ 6,627,991	$ 5,595,942	$ (86,000)	$ 39,945,576	$ 26,335,401

See accompanying notes to financial statements.

SIR SANDFORD FLEMING COLLEGE OF APPLIED ARTS AND TECHNOLOGY

DRAFT Statement of Cash Flows

Year ended March 31, 2019, with comparative information for 2018

	2019	2018
Cash provided by (used in):		
Operating activities:		
Excess of revenue over expenditures	$ 13,478,379	$ 7,813,033
Items not involving cash:		
Amortization of capital assets	7,069,656	6,331,126
Amortization of deferred capital contributions	(4,397,263)	(4,103,755)
Gain (loss) on disposal of capital assets	(36,896)	2,629
Donation of capital assets	–	(40,000)
	16,113,876	10,003,033
Accruals for post-employment benefits and compensated absences	77,000	(169,000)
Change in non-cash operating working capital:		
Ministry of Training, Colleges and Universities receivables	(56,763)	183,914
Accounts receivable	(566,637)	(1,831,615)
Inventory and prepaid expenses	(94,097)	(313,391)
Accounts payable and accrued liabilities	1,194,923	12,012,192
Accrued payroll and employee benefits	1,946,892	1,684,534
Ministry of Training, Colleges and Universities grants received in excess of entitlements	228,854	1,204,717
Deferred revenue	2,187,731	6,365,079
	21,031,779	29,139,463
Capital activities:		
Deferred capital contributions	11,933,055	7,099,781
Purchase of capital assets	(16,977,291)	(15,819,762)
Proceeds on disposal of capital assets	99,809	83,426
	(4,944,427)	(8,636,555)
Financing activities:		
Deferred contributions, bursaries and other	508,054	104,885
Endowment contributions	125,796	31,286
Principal payments on long-term debt	(1,020,263)	(985,751)
	(386,413)	(849,580)

SIR SANDFORD FLEMING COLLEGE OF APPLIED ARTS AND TECHNOLOGY

DRAFT Statement of Cash Flows (continued)

Year ended March 31, 2019, with comparative information for 2018

	2019	2018
Investing activities:		
Invested in short-term investments, net	(22,633,665)	(10,682,430)
Increase in restricted investments for endowments, bursaries and other	(633,850)	(136,171)
	(23,267,515)	(10,818,601)
Increase (decrease) in cash	(7,566,576)	8,834,727
Cash, beginning of year	25,443,420	16,608,693
Cash, end of year	$ 17,876,844	$ 25,443,420
Supplemental cash flow information:		
Interest paid	$ 357,836	$ 391,065
Interest received	1,187,757	506,978

See accompanying notes to financial statements.

SIR SANDFORD FLEMING COLLEGE OF APPLIED ARTS AND TECHNOLOGY

DRAFT Statement of Remeasurement Gains and Losses

Year ended March 31, 2019, with comparative information for 2018

	2019	2018
Accumulated remeasurement losses, beginning of year	$ (92,000)	$ (149,000)
Unrealized gain on swap derivatives	6,000	57,000
Accumulated remeasurement losses, end of year	$ (86,000)	$ (92,000)

See accompanying notes to financial statements.

SIR SANDFORD FLEMING COLLEGE OF APPLIED ARTS AND TECHNOLOGY

DRAFT Notes to Financial Statements

Year ended March 31, 2019

Sir Sandford Fleming College of Applied Arts and Technology (the "College") was established as a corporation without share capital, as set out in the Ontario Colleges of Applied Arts and Technology Act. The Corporations Act governs the corporate affairs of the College and became effective April 1, 2003. The College is principally involved in providing post-secondary educational services. Under the Income Tax Act (Canada), the College is considered a registered charity and, accordingly, is exempt from income taxes, provided certain requirements of the Income Tax Act (Canada) are met.

1. Significant accounting policies:

(a) Basis of accounting:

These financial statements are the representation of management and have been prepared in accordance with Canadian public sector accounting standards for government not-for-profit organizations ("Government NPOs"), including the 4200 Series of Standards, as issued by the Public Sector Accounting Board ("PSAB").

(b) Revenue recognition:

The College follows the deferral method of accounting for contributions and other revenues. Restricted contributions are recognized as revenue in the year in which the related expenses are incurred. Unrestricted contributions are recognized as revenue when received or receivable if the amount to be received can be reasonably estimated and collection is reasonably assured. Endowment contributions are recognized as direct increases to net assets.

Restricted investment income is recognized as revenue in the year in which the related expenses are incurred. Unrestricted investment income is recognized as revenue when earned.

Other revenues are recognized when received or receivable and the amount can be reasonably estimated and collection is assured.

The College defers the portion of the revenue related to the delivery of programs and courses that takes place after March 31.

1. Significant accounting policies (continued):

(c) Library books:

Library book purchases are recorded as an operating expenditure at the time of purchase.

(d) Capital assets:

Purchased capital assets are recorded at cost. Contributed capital assets are recorded at fair value at the date of contribution. Repairs and maintenance costs are charged to expenditures. Betterments which extend the estimated life of an asset are capitalized. Capital assets are amortized on a straight-line basis using the following annual rates:

Buildings	2-1/2%
Site improvements	10%
Furniture and equipment	20%
Computer equipment	33-1/3%
Residence furniture	6-2/3%
Fibre optic system	5%
Enterprise Resource Planning System	14%
Leasehold improvements	Over term of lease
Sport and Wellness Centre	Over term of the land lease
Sports fields	5%

Construction in progress is not amortized until the related asset is available for use.

1. Significant accounting policies (continued):

(e) Retirement and post-employment benefits and compensated absences:

The College provides defined retirement and post-employment benefits and compensated absences to certain employee groups. These benefits include pension, health and dental, vesting sick leave, non-vesting sick leave and compensated absences. The College has adopted the following policies with respect to accounting for these employee benefits:

(i) The costs of post-employment future benefits are actuarially determined using management's best estimate of health care costs, disability recovery rates and discount rates. Adjustments to these costs arising from changes in estimates and experience gains and losses are amortized to income over the estimated average remaining service life of the employee groups on a straight-line basis.

(ii) The costs of the multi-employer defined benefit pension are the employer's contributions due to the plan in the period.

(iii) The cost of vesting and non-vesting sick leave benefits are actuarially determined using management's best estimate of salary escalation, employees' use of entitlement and discount rates. Adjustments to these costs arising from changes in actuarial assumption and/or experience are recognized over the estimated average remaining service lives of the employees.

(iv) The discount used in the determination of the above-mentioned liabilities is equal to the College's internal rate of borrowing.

(v) The cost of compensated absences is determined using management's best estimate of the length of the compensated absences.

1. Significant accounting policies (continued):

(f) Financial instruments:

The College classifies its financial instruments as either fair value or amortized cost. The College's accounting policy for each category is as follows:

(i) Fair value:

This category includes derivatives and equity instruments quoted in an active market. The College has elected to continue carrying its bond portfolio that would otherwise be classified into the amortized cost category at fair value as the College reports performance of it on a fair value basis. They are initially recognized at cost and subsequently carried at fair value. Unrealized changes in fair value are recognized in the statement of remeasurement gains and losses until they are realized, when they are transferred to the statement of operations for unrestricted financial instruments. Changes in fair value on restricted assets are recognized as a liability until the criteria attached to the restriction has been met.

Transaction costs related to financial instruments in the fair value category are expensed as incurred.

Where a decline in fair value is determined to be other than temporary, the amount of the loss is removed from accumulated remeasurement gains and losses and recognized in the statement of operations. On sale, the amount held in accumulated remeasurement gains and losses associated with that instrument is removed from net assets and recognized in the statement of operations for unrestricted investments.

1. Significant accounting policies (continued):

(ii) Amortized cost:

This category includes accounts receivable, Ministry of Training, Colleges and Universities ("MTCU"), previously known as Ministry of Advanced Education and Skills Development ("MAESD"), receivables, accounts payable and accrued liabilities, accrued payroll and employee benefits, MTCU grants received in excess of entitlements and long-term debt. They are initially recognized at cost and subsequently carried at amortized cost using the effective interest rate method, less any impairment losses on financial assets.

Transaction costs related to financial instruments in the amortized cost category are added to the carrying value of the instrument.

Write-downs on financial assets in the amortized cost category are recognized when the amount of a loss is known with sufficient precision, and there is no realistic prospect of recovery. Financial assets are then written down to net recoverable value with the write-down being recognized in the statement of operations.

(g) Inventory:

Inventory is valued at the lower of cost, on a first-in, first-out basis, and replacement cost.

(h) Contaminated sites:

Contaminated sites are defined as the result of contamination being introduced that exceeds an environmental standard.

A liability for remediation of contaminated sites is recognized, net of any expected recoveries, when all of the following criteria are met:

(i) an environmental standard exists;

(ii) contamination exceeds the environmental standard;

1. Significant accounting policies (continued):

(iii) the organization is directly responsible or accepts responsibility for the liability;

(iv) future economic benefits will be given up; and

(v) a reasonable estimate of the liability can be made.

(i) Foreign currency:

Foreign currency transactions are recorded at the exchange rate at the financial statement date. Unrealized foreign exchange gains and losses are recognized in the statement of remeasurement gains and losses. In the period of settlement, the realized foreign exchange gains and losses are recognized in the statement of operations and the unrealized balances are transferred from the statement of remeasurement gains and losses.

(j) Capital donations:

The College records in-kind capital donations if a charitable tax receipt for income taxes is issued. Other in-kind donations are not recorded in the financial statements.

(k) Use of estimates:

The preparation of financial statements requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenue and expenditures during the year. These estimates and assumptions are based on management's historical experience, best knowledge of current events and actions that the Board of Governors ("Board") may undertake in the future. Significant accounting estimates include allowance for doubtful accounts, actuarial estimates of post-employment benefits and compensated absences, liability for contaminated sites and estimated useful lives of capital assets. Actual results could differ from those estimates.

2. Restricted investments for endowments, bursaries and other:

Investments in the amount of $10,055,958 (2018 - $9,422,108) are restricted as to use and are not available for general operations. Fair value is described in note 1.

3. Financial instrument classification:

The following tables provide cost and fair value information of financial instruments by category. The maximum exposure to credit risk would be the carrying value, as shown below:

2019	Fair value	Amortized cost	Total
Cash	$ 17,876,844	$ –	$ 17,876,844
Short-term investments	40,817,577	–	40,817,577
MTCU receivables	–	5,489,537	5,489,537
Accounts receivable	–	5,759,591	5,759,591
Restricted investments for endowments, bursaries and other	10,055,958	–	10,055,958
Accounts payable and accrued liabilities	–	(25,499,637)	(25,499,637)
Accrued payroll and employee benefits		(12,829,415)	(12,829,415)
MTCU grants received in excess of entitlements		(2,082,805)	(2,082,805)
Long-term debt		(10,045,119)	(10,045,119)
Deferred derivative liability	(86,000)		(86,000)
	$ 68,664,379	$ (39,207,848)	$ 29,456,531

3. Financial instrument classification (continued):

2018	Fair value	Amortized cost	Total
Cash	$ 25,443,420	$ –	$ 25,443,420
Short-term investments	18,183,912	–	18,183,912
MTCU receivables	–	5,432,774	5,432,774
Accounts receivable	–	5,192,954	5,192,954
Restricted investments for endowments, bursaries and other	9,422,108	–	9,422,108
Accounts payable and accrued liabilities	–	(24,304,714)	(24,304,714)
Accrued payroll and employee benefits	–	(10,882,523)	(10,882,523)
MTCU grants received in excess of entitlements	–	(1,853,951)	(1,853,951)
Long-term debt	–	(11,065,382)	(11,065,382)
Deferred derivative liability	(92,000)	–	(92,000)
	$ 52,957,440	$ (37,480,842)	$ 15,476,598

Short-term investments and restricted investments for endowment, bursaries and other consist of equity instruments in Canadian public companies, government and corporate bonds and guaranteed investment certificates.

	Level	2019	2018
Money market	1	$ 333,146	$ 380,679
Fixed income	1	48,065,723	24,850,626
Canadian equity	1	2,474,666	2,374,715
		$ 50,873,535	$ 27,606,020

3. Financial instrument classification (continued):

Maturity profile of bonds held is as follows:

2019	Within 1 year	2 - 5 years	6 - 10 years	Over 10 years	Total
Carrying value	$ 303,091	$ 1,167,818	$ 21,258	$ –	$ 1,492,167
Percentage of total	20	78	2	0	100

2018	Within 1 year	2 - 5 years	6 - 10 years	Over 10 years	Total
Carrying value	$ –	$ 1,278,941	$ 248,701	$ –	$ 1,527,642
Percentage of total	–	84	16	–	100

The following provides an analysis of financial instruments that are measured subsequent to initial recognition at fair value, grouped into Level 1 to Level 3 based on the degree to which the fair value is observable:

- Level 1 - fair value measurements are those derived from quoted prices (unadjusted) in active markets for identical assets or liabilities using the last bid price;

- Level 2 - fair value measurements are those derived from inputs other than quoted prices included within Level 1 that are observable for the asset or liability, either directly (i.e., as prices) or indirectly (i.e., derived from prices); and

- Level 3 - fair value measurements are those derived from valuation techniques that include inputs for the asset or liability that are not based on observable market data (unobservable inputs).

3. Financial instrument classification (continued):

All cash, short-term investments and restricted investments for endowments, bursaries and other are classified as Level 1 financial instruments. The deferred derivative liability is classified as a Level 3 financial instrument.

There were no transfers between Level 1 and Level 2 for the years ended March 31, 2019 and 2018. There were also no transfers in or out of Level 3. For a sensitivity analysis of financial instruments recognized in Level 3, see note 10 - interest rate risk, as the prevailing interest rate is the most significant input into the fair value of the instrument.

4. Capital assets:

			2019	2018
	Cost	Accumulated amortization	Net book value	Net book value
Land	$ 2,083,687	$ –	$ 2,083,687	$ 2,083,687
Buildings	164,756,970	56,900,641	107,856,329	98,176,370
Site improvements	5,345,254	4,272,404	1,072,850	1,129,540
Furniture and equipment	30,308,045	24,608,788	5,699,257	5,325,835
Computer equipment	9,048,869	7,254,667	1,794,202	1,680,537
Residence furniture	1,086,301	1,086,301	–	–
Fibre optic system	1,560,459	1,126,809	433,650	511,673
Enterprise Resource Planning System	4,014,447	3,947,316	67,131	85,641
Leasehold improvements	590,697	574,792	15,905	–
Sport and Wellness Centre	2,470,079	681,700	1,788,379	1,837,830
Sports fields	2,711,111	742,978	1,968,133	2,103,688
	$ 223,975,919	$ 101,196,396	$ 122,779,523	$ 112,934,801

4. Capital assets (continued):

The total capital asset additions purchased and donated during the year was $16,977,291 (2018 - $15,859,762). MTCU contributed $8,066,922 (2018 - $3,513,752), the federal government $3,255,133 (2018 - $5,278,688), private companies nil (2018 - $40,000), fundraising $177,296 (2018 - $252,234) and internal funds $5,477,940 (2018 - $6,775,088).

Included in buildings and site improvements is capital in progress in the amount of $722,747 (2018 - $12,580,564) and $106,160 (2018 - nil), respectively.

5. Deferred capital contributions:

Deferred capital contributions represent the unamortized amount and unspent amount of donations and grants received for the purchase of capital assets. The amortization of deferred capital contributions is recorded as revenue in the statement of operations. The changes in the deferred capital contributions balance are as follows:

	2019	2018
Balance, beginning of year	$ 79,835,306	$ 76,839,280
Less amounts amortized to revenue	4,397,263	4,103,755
	75,438,043	72,735,525
Contributions received for capital purposes	11,933,055	7,099,781
Balance, end of year	$ 87,371,098	$ 79,835,306

As at March 31, 2019, there was $1,276,337 (2018 - $842,634) of deferred capital contributions received that were not spent.

6. Long-term debt:

	2019	2018
Brealey Student residence loan, payable $630,940 semi-annually, including interest at 3.218%, due July 2027, secured by specific property	$ 9,319,119	$ 10,258,382
Less principal repayments due within one year	969,731	939,263
	8,349,388	9,319,119
The Peterborough Sport and Wellness Centre loan payable, secured by specific property	726,000	807,000
Less principal repayments due within one year	85,000	81,000
	641,000	726,000
	$ 8,990,388	$ 10,045,119

The College has entered into an interest rate swap for The Peterborough Sport and Wellness Centre. The fair value of the interest rate swap has been recorded as a deferred derivative liability.

The fair value of the interest rate swap has been determined using Level 3 of the fair value hierarchy. The fair value of the interest rate swap is based on broker quotes. These quotes are tested for reasonableness by discounting estimated future cash flows based on the terms and maturity of each contract and using market interest rates for a similar instrument at the measurement date.

The Peterborough Sport and Wellness Centre swap has a notional value of $1,500,000, whereby that portion of the loan payable is fixed at 5.49%, inclusive of the stamping fee. Principal repayments are due quarterly with the swap agreement expiring on June 13, 2026. The fair value of the swap liability is $86,000 (2018 - $92,000).

6. Long-term debt (continued):

During the year, the College entered into a new term loan agreement for the Health Sciences Cluster and GeoCentre and Environmental Sciences Facilities projects. The maximum principal in this agreement is $5,000,000 and as at March 31, 2019, no amounts have been drawn on this facility.

The College also has a revolving credit facility for an operating line of credit to a maximum of $5,000,000. The operating line of credit is unsecured and bears interest at the College's bank prime lending rate minus 0.50%. As at March 31, 2019, no amounts have been drawn on this facility (2018 - nil).

The principal repayments due on long-term debt in the next five years and thereafter are as follows:

2020	$ 1,054,731
2021	1,090,188
2022	1,127,666
2023	1,166,197
2024	1,205,815
Thereafter	4,400,522
	$ 10,045,119

7. Post-employment benefits and compensated absences liability:

The following tables outline the components of the College's post-employment benefits and compensated absences liabilities and the related expenses:

					2019	2018
	Post-employment benefits	Non-vesting sick leave	Vesting sick leave	Compensated absences	Total liability	Total liability
Accrued employee future benefits obligations	$ 755,000	$ 2,658,000	$ 70,000	$ 305,000	$ 3,788,000	$ 3,617,000
Value of plan assets	(138,000)	–	–	–	(138,000)	(157,000)
Unamortized actuarial gains (losses)	49,000	91,000	197,000	–	337,000	450,000
	$ 666,000	$ 2,749,000	$ 267,000	$ 305,000	$ 3,987,000	$ 3,910,000

7. Post-employment benefits and compensated absences liability (continued):

	Post-employment benefits	Non-vesting sick leave	Vesting sick leave	Compensated absences	2019 Total expense	2018 Total expense
Current year benefit costs	$ 59,000	$ 136,000	$ 3,000	$ 305,000	$ 503,000	$ 326,000
Interest on accrued benefit obligation	2,000	67,000	2,000	–	71,000	53,000
Amortized actuarial gains	(7,000)	(10,000)	–	–	(17,000)	28,000
	$ 54,000	$ 193,000	$ 5,000	$ 305,000	$ 557,000	$ 407,000

7. Post-employment benefits and compensated absences liability (continued):

Above amounts exclude pension contributions to the Colleges of Applied Arts and Technology Pension Plan (the "Plan"), a multi-employer plan, described below:

(a) Retirement benefits:

Full-time employees of the College are members of the Plan, which is a multi-employer jointly sponsored defined benefit plan for eligible employees of public colleges and other employers in Ontario. Other than regular full-time employees may elect to join the Plan on or any time after their date of hire. The College makes contributions to the Plan equal to those of the employees. Contribution rates are set by the Plan's governors to ensure the long-term viability of the Plan. Since the Plan is a multi-employer plan, the College's contributions are accounted for as if the plan were a defined contribution plan with the College's contributions being expensed in the period they come due.

Any pension surplus or deficit is a joint responsibility of the members and employers and may affect future contribution rates. The College does not recognize any share of the Plan's pension surplus or deficit as insufficient information is available to identify the College's share of the underlying pension assets and liabilities. The most recent actuarial valuation filed with pension regulators as at January 1, 2019 indicated an actuarial surplus of $2.6 billion. The College made contributions to the Plan of $6,655,658 (2018 - $5,835,162), which has been included in the statement of operations.

The College makes contributions to the Retirement Compensation Arrangement ("RCA") to triple the qualifying employee contributions. In 2019, the College's contributions to RCA amounted to $82,956 (2018 - $67,035), and has been included in the statement of operations.

7. Post-employment benefits and compensated absences liability (continued):

(b) Post-employment benefits:

The College extends post-employment life insurance, health and dental benefits to certain employee groups subsequent to their retirement. The College recognizes these benefits as they are earned during the employees' tenure of service. The related benefit liability was determined by an actuarial valuation study commissioned by the College Employer Council.

The major actuarial assumptions employed for the valuations are as follows:

(i) Discount rate:

The present value, as at March 31, 2019, of the future benefits was determined using a discount rate of 2.20% (2018 - 2.60%).

(ii) Drug costs:

Drug costs were assumed to increase at a 7.82% rate for 2019 (2018 - 8.0%) and decrease proportionately thereafter to an ultimate rate of 4.0% in 2040 for fiscal 2019 (2018 - 4.0% in 2034).

(iii) Hospital and other medical:

Hospital and other medical costs were assumed to increase at 4.0% per annum (2018 - 4.0%).

Medical premium increases were assumed to increase at 6.67% per annum in 2019 (2018 - 6.24%) and decrease proportionately thereafter to an ultimate rate of 4.0% in 2040 for fiscal 2019 (2018 - 4.0% in 2034).

(iv) Dental costs:

Dental costs were assumed to increase at 4.0% per annum in 2019 (2018 - 4.0%).

7. Post-employment benefits and compensated absences liability (continued):

(c) Compensated absences:

(i) Vesting sick leave:

The College has provided for vesting sick leave benefits during the year. Eligible employees, after 10 years of service, are entitled to receive 50% of their accumulated sick leave credit on termination or retirement to a maximum of 6 months' salary. The program to accumulate sick leave credits ceased for employees hired after March 31, 1991. The related benefit liability was determined by an actuarial valuation study commissioned by the College Employer Council.

(ii) Non-vesting sick leave:

The College allocates to certain employee groups a specified number of days each year for use as paid absences in the event of illness or injury. These days do not vest and are available immediately. Employees are permitted to accumulate their unused allocation each year, up to the allowable maximum provided in their employment agreements. Accumulated days may be used in future years to the extent that the employees' illness or injury exceeds the current year's allocation of days. Sick days are paid out at the salary in effect at the time of usage. The related benefit liability was determined by an actuarial valuation study commissioned by the College Employer Council.

The assumptions used in the valuation of vesting and non-vesting sick leave are the College's best estimates of expected rates of:

	2019	2018
Wage and salary escalation	1.50% - 2.00%	1.50% - 2.00%
Discount rate	2.20%	2.60%

The probability that the employee will use more sick days than the annual accrual and the excess number of sick days used are within ranges of 0.0% to 23.7% and nil to 48 days, respectively, for age groups ranging from 20 and under to 65 and over in bands of five years.

8. Net assets invested in capital assets:

(a) Net assets invested in capital assets represent the following:

	2019	2018
Capital assets, at cost (note 4)	$ 223,975,919	$ 207,774,027
Accumulated amortization (note 4)	(101,196,396)	(94,839,226)
Long-term debt:		
Long-term portion (note 6)	(8,990,388)	(10,045,119)
Current portion (note 6)	(1,054,731)	(1,020,263)
Deferred contributions related to capital assets (note 5)	(86,094,761)	(78,992,672)
Balance, end of year	$ 26,639,643	$ 22,876,747

(b) The change in net assets invested in capital assets is calculated as follows:

	2019	2018
Excess (deficiency) of revenue over expenditures:		
Amortization of deferred capital contributions	$ 4,397,263	$ 4,103,755
Amortization of capital assets	(7,069,656)	(6,331,126)
Gain (loss) on disposal of capital assets	36,896	(2,629)
	$ (2,635,497)	$ (2,230,000)
Net change in investment in capital assets:		
Donated and purchased capital assets	$ 16,977,291	$ 15,859,762
Amounts funded by deferred capital contributions	(11,499,352)	(9,084,673)
Repayment of debt	1,020,263	985,751
Proceeds on disposal	(99,809)	(83,426)
	$ 6,398,393	$ 7,677,414

9. Investment income:

Included in other revenue is investment income earned, which comprises:

	2019	2018
Unrestricted resources	$ 870,141	$ 478,510
Endowment and restricted funds	317,616	28,468
	$ 1,187,757	$ 506,978

10. Financial instrument and risk management:

(a) Credit risk:

Credit risk is the risk of financial loss to the College if a debtor fails to make payments of interest and principal when due. The College is exposed to this risk relating to its cash, debt holdings in its investment portfolio and accounts receivable. The College holds its cash accounts with federally regulated chartered banks which are insured by the Canadian Deposit Insurance Corporation. In the event of default, the College's cash accounts are insured up to $200,000 (2018 - $200,000).

The College's investment policy operates within the constraints of the investment guidelines issued by MTCU and puts limits on the bond portfolio, including portfolio composition, issuer type, bond quality, aggregate issuer, corporate sector and general guidelines for geographic exposure. All fixed income portfolios are measured for performance on a semi-annual basis and monitored by management on a monthly basis. The guidelines permit the College's funds to be invested in government bonds, bank listed as schedule I or II or a branch in Canada of an authorized foreign bank under the Bank Act. Externally restricted and endowment funds, which are generally money and donations for scholarships and bursaries, can be invested in corporate bonds with a credit rating of A(R-1) or better. All other College funds are restricted to corporate bonds with a rating of AAA.

10. Financial instrument and risk management (continued):

The maximum exposure to investment credit risk is outlined in note 3.

Student receivables are ultimately due from students. Credit risk is mitigated by financial approval processes before a student is enrolled and the highly diversified nature of the student population.

The College measures its exposure to credit risk based on how long the amounts have been outstanding. An impairment allowance is set up based on the College's historical experience regarding collections. The maximum exposure to credit risk from receivables of the College at March 31, 2019 is the carrying value of these assets.

	2019	2018
MTCU receivables	$ 5,489,537	$ 5,432,774
Student receivables	540,043	411,324
Other receivables	5,517,548	5,093,630
	11,547,128	10,937,728
Less allowance for doubtful accounts	298,000	312,000
	$ 11,249,128	$ 10,625,728

Student receivables not impaired are collectible based on the College's assessment and past experience regarding collection rates.

There have been no significant changes from the previous year in the exposure to credit risk or policies, procedures and methods used to measure the risk.

10. Financial instrument and risk management (continued):

(b) Market risk:

Market risk is the risk that the fair value or future cash flows of a financial instrument will fluctuate as a result of market factors. Market factors include three types of risk: currency risk, interest rate risk and equity risk.

The College's investment policy operates within the constraints of the investment guidelines issued by MTCU. The policy's application is monitored by management, the investment managers and the Board. Diversification techniques are utilized to minimize risk. The policy sets limits and the maximum amount allowable per investment grade non-government fixed income issue at the greater of 15% of the total portfolio or 20% of the fixed income portfolio.

There have been no significant changes from the previous year in the exposure to market risk or policies, procedures and methods used to measure the risk.

(i) Currency risk:

Currency risk relates to the College operating in different currencies and converting non-Canadian earnings at different points in time at different foreign exchange rates when adverse changes in foreign currency rates occur. The College does not have any material transactions or financial instruments denominated in foreign currencies.

10. Financial instrument and risk management (continued):

(ii) Interest rate risk:

Interest rate risk is the potential for financial loss caused by fluctuations in fair value or future cash flows of financial instruments because of changes in market interest rates.

The College is exposed to this risk through its interest-bearing investments and long-term debt.

The College mitigates interest rate risk on its long-term debt through a derivative financial instrument that exchanges the variable rate inherent in the long-term debt for a fixed rate (note 6). Therefore, fluctuations in market interest rates would not impact future cash flows and operations relating to the term debt.

The College's bond portfolio has interest rates ranging from 2.07% to 3.32% (2018 - 1.60% to 4.27%) with maturities ranging from June 2, 2019 to November 22, 2027 (2018 - April 9, 2018 to November 22, 2027).

At March 31, 2019, a 1% fluctuation in interest rates, with all other variables held constant, would have an estimated impact on the fair value of bonds and the interest rate swap of $4,000 and $27,600 (2018 - $46,400 and $34,300), respectively. The College's long-term debt, as described in note 6, would not be impacted as the inherent variable rate of the debt has been fixed with the use of the aforementioned derivative interest rate swap.

There have been no significant changes from the previous year in the exposure to interest rate risk or policies, procedures and methods used to measure the risk.

10. Financial instrument and risk management (continued):

(iii) Equity risk:

Equity risk is the uncertainty associated with the valuation of assets arising from changes in equity markets. The College is exposed to this risk through its equity holdings within its investment portfolio. At March 31, 2019, a 10% movement in the stock markets with all other variables held constant would have an estimated effect on the fair values of the College's equities of $247,000 (2018 - $237,000).

(c) Liquidity risk:

Liquidity risk is the risk that the College will not be able to meet all cash outflow obligations as they come due. The College mitigates this risk by monitoring cash activities and expected outflows through extensive budgeting and maintaining investments that may be converted to cash in the near term if unexpected cash outflows arise. The following table sets out the contractual maturities (representing undiscounted contractual cash flows of financial liabilities):

	Within 6 months	6 months to 1 year	1 - 5 years	Greater than 5 years
Accounts payable and accrued liabilities	$ 23,212,772	$ 2,286,865	$ –	$ –
Accrued payroll and employee benefits	11,747,225	761,115	321,075	–
Long-term debt	522,996	531,735	4,589,866	4,400,522

10. Financial instrument and risk management (continued):

Derivative financial liabilities mature as described in note 6.

There have been no significant changes from the previous year in the exposure to liquidity risk or policies, procedures and methods used to measure the risk.

11. Ontario Student Opportunity Trust Funds:

Net assets restricted for endowments include monies provided by the Government of Ontario from the Ontario Student Opportunity Trust Fund Phase 1 and Phase 2 ("OSOTF") matching program to award student aid as a result of raising an equal amount of endowed donations.

The College has recorded the following amounts under the OSOTF programs:

(a) OSOTF - Phase 1:

Schedule of changes in endowment fund balance:

	2019	2018
Fund balance, beginning of year	$ 1,418,420	$ 1,418,383
Preservation of capital	35	37
Fund balance, end of year	$ 1,418,455	$ 1,418,420

11. Ontario Student Opportunity Trust Funds (continued):

Schedule of changes in expendable funds available for awards:

	2019		2018	
	Market	Cost	Market	Cost
Balance, beginning of year	$ 258,039	$ 200,462	$ 313,572	$ 194,477
Realized investment income, net of direct investment-related expenses and preservation of capital contributions	64,218	52,272	727	62,245
Bursaries awarded (2019 - 51; 2018 - 67)	(43,395)	(43,395)	(56,260)	(56,260)
Balance, end of year	$ 278,862	$ 209,339	$ 258,039	$ 200,462

(b) OSOTF - Phase 2:

Schedule of changes in endowment fund balance:

	2019	2018
Fund balance, beginning of year	$ 473,741	$ 473,667
Preservation of capital	73	74
Fund balance, end of year	$ 473,814	$ 473,741

11. Ontario Student Opportunity Trust Funds (continued):

Schedule of changes in expendable funds available for awards:

	2019		2018	
	Market	Cost	Market	Cost
Balance, beginning of year	$ 77,660	$ 59,046	$ 90,019	$ 54,920
Realized investment income, net of direct investment-related expenses and preservation of capital contributions	20,560	16,501	2,791	19,276
Bursaries awarded (2019 - 12; 2018 - 13)	(15,995)	(15,995)	(15,150)	(15,150)
Balance, end of year	$ 82,225	$ 59,552	$ 77,660	$ 59,046

12. Ontario Trust for Student Support:

Net assets restricted for endowments include monies provided by the Government of Ontario from the Ontario Trust for Student Support matching program to award student aid.

Schedule of changes in endowment fund balances during the year:

	2019	2018
Fund balance, beginning of year	$ 3,813,064	$ 3,813,048
Preservation of capital	15	16
Fund balance, end of year	$ 3,813,079	$ 3,813,064

12. Ontario Trust for Student Support (continued):

Schedule of changes in expendable funds available for awards:

	2019		2018	
	Market	Cost	Market	Cost
Balance, beginning of year	$ 411,744	$ 266,286	$ 512,517	$ 229,771
Realized investment income, net of direct investment-related expenses and preservation of capital contributions	156,603	128,089	9,492	146,780
Bursaries awarded (2019 - 103; 2018 - 149)	(75,135)	(75,135)	(110,265)	(110,265)
Balance, end of year	$ 493,212	$ 319,240	$ 411,744	$ 266,286

13. Fleming College Foundation:

Fleming College Foundation (the "Foundation") was established to raise funds for the use of the College. The Foundation was incorporated under the Corporations Act (Ontario) and is a registered charity under the Income Tax Act (Canada).

As defined by the Chartered Professional Accountants of Canada PSAB accounting recommendations for Government NPOs, the College controls the Foundation operations in that they have common board members controlling both entities. The majority of fundraising has been carried out by the College since April 1, 2011.

The Foundation's financial statements have not been consolidated in the College's financial statements. Separate financial statements of the Foundation are available upon request.

13. Fleming College Foundation (continued):

Financial summaries of the Foundation as at and for the year ended March 31 are as follows:

	2019	2018
Financial position		
Total assets	$ 5,249	$ 5,223
Total liabilities	5,249	5,223
Fund balances	$ –	$ –
Results of operations		
Total revenue	$ 22,628	$ 30,681
Total expenses	5,249	5,223
Transfers to Fleming College	17,379	25,458
Excess of expenditures over revenue	$ –	$ –

The net resources of the Foundation amount to nil (2018 - nil).

14. Internally restricted net assets:

	2019	2018
Residence and other direct student services	$ 1,118,000	$ 886,000
Sports Field Capital Reserve Fund	50,000	40,000

Internally restricted net assets represent funds restricted by Board motion for the purpose of residence and other direct student services, as well as capital repairs and improvements to the sports field complex. Board approval is required for expenditures.

14. Internally restricted net assets (continued):

On May 22, 2019, the Board approved a transfer of $232,000 from unrestricted to internally restricted net assets for the purpose of residence and other direct student services. The balance now represents funds available for future reinvestment.

A further transfer of $10,000 from unrestricted to internally restricted net assets was approved for the purpose of capital repairs and improvements to the sports field complex.

15. Commitments:

The College is committed to the following operating lease payments in each of the following years:

2020	$ 685,718
2021	362,035
2022	189,977
2023	163,581
2024	54,625

SIR SANDFORD FLEMING COLLEGE

FINANCIAL STATEMENTS – 2018/19

REPORT OF

VICE PRESIDENT CORPORATE SERVICES

A. STATEMENT OF FINANCIAL POSITION

Introduction

A summary of the significant accounting policies and reporting practices followed by the College are outlined in the Notes to the Financial Statements.

The Financial Statements include net assets of $ 39.9 million as at March 31, 2019 and include the prior year's financial results.

The following highlights describe the changes during the 2018/19 fiscal year.

Cash has decreased by $ 7.6 million as outlined in the Statement of Cash Flows.

Operating activities include an excess of revenue over expenditures of $ 13.5 million. When combined with items not involving cash and other changes in operating working capital, cash has increased by $ 21.0 million.

Capital activities resulted in a decrease of $ 4.9 million as capital expenditures exceeded contributions received during the year.

Financing activities have utilized $ .4 million mainly due to the repayment of long-term debt.

Investing activities resulted in a decrease in cash of $ 23.3 million due to more funds being held in short-term investments.

Cash is invested in accordance with the Ministry of Training Colleges and Universities (MTCU) Banking, Investments and Borrowing Binding Policy directive.

MTCU receivables: The outstanding balance of $ 5.5 million is due from MTCU. Of this total, $ 4.4 million relates to the BScN Operating Grant, $ .7 million to the Greenhouse Gas Campus Retrofit Program (GGCRP) and $ .4 million to other grant funding.

Accounts receivable: The accounts receivable has increased by $ .6 million due to an increase in the Federal Development research grant ($ .2 million), the new NSERC IRCC grant ($.2 million) and the new international application fee ($ .2 million).

Report of
Vice President Corporate Services May 2019

Capital assets: Details of the classification of capital assets held are provided in Note 4 to the Financial Statements. The net book value has increased, as compared to the prior year, by about $ 9.8 million. During the fiscal year, capital investments totalled $ 17.0 million and related to the following activities; GGCRP ($ 6.5 million); Strategic Investment Fund ($ 5.9 million), academic ($ 1.8 million), information technology ($ 1.0 million), KTTC ($.7 million), facilities ($ .7 million), research ($ .2 million) and other capital ($ .2 million).

Accounts payable: The accounts payable has increased from the prior year by $ 1.2 million, mainly due to an increase in the funds held on behalf of the student associations.

Accrued payroll and employee benefits: The accrued payroll and employee benefits have increased by approximately $ 1.9 million mainly due to the voluntary exit option plan offered to eligible employees.

MTCU grants received in excess of entitlements: The outstanding balance of $ 2.1 million represents funds received from MTCU that were not earned at March 31, 2019. The majority of the balance ($ 1.5 million) represents the international enrolment operating grant recovery not withheld by MTCU during the year.

Deferred revenue: The deferred revenue has increased by about $ 2.2 million, which is a result of a change effective September 2018 whereby international students are required to pay two semesters in order to obtain a study permit.

Long-term debt: Details of the long-term debt are outlined in Note 6 to the Financial Statements. There are two loans outstanding; the Sutherland residence in the amount of $ 9.3 million and Peterborough Sport and Wellness Centre loan of $ .7 million. During the year principal repayments totalled $ 1.0 million.

Deferred capital contributions: Deferred capital contribution changes are outlined in Note 5 to the Financial Statements. The increase of $ 7.5 million is the net of additional funding received during the year of $ 11.9 million minus $ 4.4 million of earned amortization. The total funding spent during the year was $ 11.5 million, which offset capital purchases related to the following activities; GGCRP ($ 6.5 million), Strategic Investment Fund ($ 3.3 million), academic ($ 1.1 million), facilities ($ .3 million) and other capital ($ .3 million).

Net assets: Net assets have increased by $ 13.6 million as outlined on the Statement of Changes in Net Assets. The excess of revenue over expenditures total $ 13.5 million of which $ .6 million in surplus was generated by the residence; the endowment contributions and derivative liability market changes comprise the balance of the change in net assets.

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SIR SANDFORD FLEMING COLLEGE

Statement of Revenue and Expenditures

For the Period Ending March 31, 2019

	Actual To 31-Mar-2019	Current Year Budget	$ Variance Decrease (Increase)	% Variance	Notes	Prior Year Actual To 31-Mar-2018
Revenue						
Grants	**(51,159,333.12)**	**(51,333,224.00)**	**173,890.88**	-0.3%	1	**(47,093,380.40)**
Full-time Tuition	**(58,523,389.76)**	**(56,314,765.00)**				**(40,463,602.18)**
Part-time Tuition	**(3,533,489.35)**	**(3,519,672.00)**				**(2,950,372.52)**
Student Tuition Fees	**(62,056,879.11)**	**(59,834,437.00)**	**(2,222,442.11)**	3.7%	2	**(43,413,974.70)**
Contract Training	**(914,414.16)**	**(934,366.00)**	**19,951.84**	-2.1%		**(1,165,943.11)**
Other Income	**(10,720,918.25)**	**(9,810,428.00)**	**(910,490.25)**	9.3%		**(9,665,196.84)**
Ancillary Fees	**(5,912,377.03)**	**(5,671,340.00)**	**(241,037.03)**	4.3%		**(5,022,789.96)**
Total Other Income	**(16,633,295.28)**	**(15,481,768.00)**	**(1,151,527.28)**	7.4%	3	**(14,687,986.80)**
Amortization of Deferred Capital Contributions	**(4,397,262.93)**	**(4,392,500.00)**	**(4,762.93)**	0.1%		**(4,103,754.88)**
Total Operating Revenues	**(135,161,184.60)**	**(131,976,295.00)**	**(3,184,889.60)**	2.4%		**(110,465,039.89)**
Skills Programs	**(3,524,339.76)**	**(3,650,253.00)**	**125,913.24**	-3.4%	4	**(3,751,703.67)**
Tuition Holdback Bursaries	**(2,361,138.90)**	**(3,050,000.00)**	**688,861.10**	-22.6%	5	**(2,122,931.14)**
Ministry Bursaries	**(655,830.02)**	**(582,300.00)**	**(73,530.02)**	12.6%		**(595,334.32)**
Special Projects	**(4,043,769.73)**	**(4,470,615.00)**	**426,845.27**	-9.5%	6	**(2,953,890.53)**
Facilities Renewal and Renovation Projects	**(536,560.62)**	**(676,325.00)**	**139,764.38**	-20.7%	7	**(623,048.22)**
Residence Operations	**(4,862,714.97)**	**(4,803,525.00)**	**(59,189.97)**	1.2%		**(4,448,274.23)**
Parking Operations	**(1,289,155.22)**	**(1,203,500.00)**	**(85,655.22)**	7.1%		**(1,183,923.26)**
Total Revenue	**$ (152,434,693.82)**	**$ (150,412,813.00)**	**(2,021,880.82)**	1.3%		**$ (125,935,282.29)**

SIR SANDFORD FLEMING COLLEGE

Statement of Revenue and Expenditures

For the Period Ending March 31, 2019

	Actual To 31-Mar-2019	Current Year Budget	$ Variance Decrease (Increase)	% Variance	Notes	Prior Year Actual To 31-Mar-2018
Expenditures						
Salaries and Benefits						
Salaries, Full Time	**48,109,999.54**	**46,282,848.00**	**1,827,151.54**	3.9%		**40,988,026.37**
Salaries, Part Time	**18,943,810.56**	**19,189,543.00**	**(245,732.44)**	-1.3%		**13,514,078.78**
Benefits	**13,692,428.65**	**14,214,046.00**	**(521,617.35)**	-3.7%		**11,570,658.43**
Total Salaries and Benefits	**80,746,238.75**	**79,686,437.00**	**1,059,801.75**	1.3%	8	**66,072,763.58**
	20.4%	21.7%				21.2%
Non-Salary Expenses						
Instructional Support Costs	**6,004,150.29**	**6,291,841.00**	**(287,690.71)**	-4.6%	9	**5,299,474.88**
Travel	**1,718,041.31**	**2,031,552.00**	**(313,510.69)**	-15.4%	10	**1,340,184.05**
Advertising	**1,269,542.46**	**1,226,996.00**	**42,546.46**	3.5%		**937,632.60**
Telephone, Audit, Legal & Insurance	**3,046,757.59**	**3,453,942.00**	**(407,184.41)**	-11.8%	11	**2,632,975.66**
Equipment Maintenance	**661,906.42**	**655,218.00**	**6,688.42**	1.0%		**595,045.56**
Plant and Security	**3,027,754.07**	**2,850,118.00**	**177,636.07**	6.2%	12	**2,619,307.00**
Rentals and Taxes	**891,232.13**	**1,043,808.00**	**(152,575.87)**	-14.6%	13	**844,174.39**
Utilities	**2,890,337.33**	**2,557,366.00**	**332,971.33**	13.0%	14	**3,167,472.92**
Contract Services Trent	**2,452,156.37**	**2,280,436.00**	**171,720.37**	7.5%	15	**2,294,883.00**
Services & Other	**8,948,490.92**	**8,983,662.00**	**(35,171.08)**	-0.4%		**7,095,318.35**
Long Term Debt Interest	**42,448.52**	**82,449.00**	**(40,000.48)**	-48.5%		**46,716.28**
Amortization of Capital Assets	**6,362,653.14**	**6,604,426.00**	**(241,772.86)**	-3.7%	16	**5,595,719.81**
Total Non-Salary Expenses	**37,315,470.55**	**38,061,814.00**	**(746,343.45)**	-2.0%		**32,468,904.50**
Total Operating Expenditures	**118,061,709.30**	**117,748,251.00**	**313,458.30**	0.3%		**98,541,668.08**
Investments	**4,198,900.77**	**5,632,501.00**	**(1,433,600.23)**	-25.5%	17	**3,650,743.27**
Skills Programs	**3,526,510.47**	**3,650,253.00**	**(123,742.53)**	-3.4%	4	**3,751,724.57**
Tuition Holdback Bursaries	**2,361,138.90**	**3,050,000.00**	**(688,861.10)**	-22.6%	5	**2,122,931.14**
Ministry Bursaries	**655,830.02**	**582,300.00**	**73,530.02**	12.6%		**595,334.32**
Special Projects	**4,031,814.49**	**4,470,615.00**	**(438,800.51)**	-9.8%	6	**2,953,890.53**
Facilities Renewal and Renovation Projects	**590,155.28**	**703,509.00**	**(113,353.72)**	-16.1%	7	**1,405,388.19**
Residence Operations	**4,241,100.11**	**4,592,095.00**	**(350,994.89)**	-7.6%		**3,916,653.00**
Parking Operations	**1,289,155.22**	**1,223,958.00**	**65,197.22**	5.3%		**1,283,581.57**
Total Expenditures	**$ 138,956,314.56**	**$ 141,653,482.00**	**(2,697,167.44)**			**$ 118,321,914.67**
Net	**$ (13,478,379.26)**	**$ (8,759,331.00)**	**(4,719,048.26)**			**$ (7,613,367.62)**

B. SUMMARY OF REVENUE AND EXPENDITURE VARIANCES

The purpose of the following comments is to provide explanations for significant variances (variance > $0.1 million or 10%) when comparing the actual financial results for the year ended March 31, 2019 to the budget as disclosed through The Statement of Revenue and Expenditures.

1. **Grants**: Many of the college grants are tied to enrolment projections and will fluctuate with enrolment adjustments as submitted to the ministry. Overall grant revenues for 2018/2019 decreased by $0.174 million (0.3%) which includes an increase in grants from our collaborative nursing program, a decrease in the second career funding and a decrease in overall operating grant associated with an increase in international enrolments.

2. **Student Tuition Fees**: Student tuition exceeded budget by $2.222 million (3.7%), as a result of an increase in winter international enrolments versus the update budget.

3. **Other Income:** The increase in other income of $1.152 million (7.4%) comes from a variety of sources. A new fee, through the college sector application portal (OCAS), was implemented for international applications earning the college $0.365 million more than in budget. As a result of increased enrolment activity, ancillary fees increased by $0.241 million and fees for international health insurance increased by $0.108 million. Additionally, an increase of $0.170 million was the result of higher investment income due to increased cash flow and income of $0.251 million was also earned on sale of course materials and through service agreements.

4. **Skills Programs:** A decrease in revenue of $0.126 million (3.4%) is due to skills program underspending and delays to activity that will carry-over into next fiscal.

5. **Bursaries:** Donated funds and distribution of bursaries is not fully known at time of budget preparation and this traditionally results in a budget variance. This poses no risk to the College operating budget as 100% of Bursary revenue recognized is flowed directly to students as awards and/or required financial aid.

6. **Special Projects:** The majority of special projects variances are in relation to a variety of grant conditions. Revenue recognition is matched to the type of expenditures for the projects, therefore $0.376 million in expenditures was classified as a capital asset (and not expense), thus revenue was deferred to match the timing of amortization of these assets. Additionally, timing differences in project delivery allow for a deferral of revenue of $0.05 million into 2019/2020.

7. **Facility Renewal and Renovation Projects:** Grants associated with the College renewal and renovation projects are recognized as revenue when expenditures are made on the eligible projects that are not capital in nature. As projects progress, the classification between capital asset and expense items often changes from budget estimates. Revenue recognized in operations is under budget by $0.114 million due to the progress and nature of expenditures (ie: more capital assets) made in the year on the College's renovation projects.

8. **Salaries and Benefits:** Salaries and Benefits were overspent by $1.06 million (1.3%) accounting for the voluntary exit option plan offered to eligible employees. Under spending in both part time and benefits is primarily due to uncertainty on part time costing and benefits related to Bill 148 and the subsequent reversal of Bill 148. Caution was taken in utilization of part-time support staff and benefits were over estimated in the update budget.

9. **Instructional Support Costs:** A portion of planned expenditures for computer software of $0.288 million (4.6%) did not materialize within the year.

10. **Travel and Professional Development:** The decrease in expenditures of $0.314 million (15.4%) occurred, with under utilization of funding available for professional development.

11. **Telephone, Audit, Legal & Insurance:** As risk mitigation, the budget process had placed a contingency for potentially higher legal fees related to significant construction contracts and human resource matters for the college. These funds were not required.

12. **Plant and Security:** Additional funds were required on building and building equipment maintenance, as well as increasing security/info booth coverage into evenings at the Sutherland campus due to higher enrolment.

13. **Rental and Taxes:** Overall rentals and taxes were lower than planned with rentals coming in $67,000 less than planned and taxes $86,000 less than planned.

14. **Utilities:** Utilities over the winter months were higher than originally anticipated at budget update primarily due to adverse weather conditions.

15. **Contract Service Trent:** An increase in enrolments in our collaborative nursing program required additional funding paid to Trent University; however, this was offset by additional Ministry grants.

16. **Amortization of Capital Assets:** A savings of $0.242 million was due to timing on the purchase and installation of physical assets. Accounting practice only amortizes assets as they are put into service, where the budget estimates all new assets at a half year of expense.

17. **Investments:** The infrastructure investment budget was underspent by $1.4 million (25%) due to college capacity required to undertake further special projects, as well as more projects being accounted for as capital assets than planned in the update budget. Contingency funding included in the budget update could not be utilized due to other project priorities.

SUBMISSION TO THE BOARD OF GOVERNORS

Agenda Item xx

Report Title: New Program – Conservation Biology
Report to: Public Board Meeting **Meeting Date: May 22, 2019**
Requested Action: Decision / Approval
Prepared and Submitted by: Brett Goodwin, Dean of School of Environmental and Natural Resource Sciences

OVERVIEW / BACKGROUND

The School of Environmental and Natural Resource Sciences proposes to launch an Ontario College Diploma in Conservation Biology commencing in September 2019.

In November 2018, the Conservation Biology preliminary program proposal was presented to the Board of Governors. The program proposal was supported by the Board of Governors and the attached business case document was developed for review and approval.

Fleming College's School of Environmental and Natural Resource Sciences (SENRS) has an established reputation of delivering quality environmental and natural resource science programming. The school is unique in that it attracts students mainly from outside our local catchment area. In order to expand and occupy an unfilled niche in environmental college programming in Ontario, we are proposing the addition of a four-semester Conservation Biology Ontario College Diploma program at SENRS.

This program will take advantage of the Common First Semester and most of the Common Second Semester to reduce the need for new course development, create internal pathways between the new Conservation Biology program and existing programs such as Fish and Wildlife and Ecosystem Management, and allow efficient course delivery via economies of scale for those shared courses. As with related programs such as Fish and Wildlife, we will develop external pathways to link this program with Conservation Biology bachelor's degrees. Finally, the program will lend itself to applied research with an applied project course.

This program will not only fill this gap in our core environmental offerings, it will also benefit students by offering training and applied research opportunities in the field of genetics and environmental DNA (eDNA). Currently, SENRS does not have a program with a strong genetic component. At the same time, genetic tools are becoming more and more commonplace in the environmental and wildlife fields. To add a program with this skill-set embedded in it, allows us to prepare students with cutting-edge skills.

ANALYSIS / PROPOSED OPTIONS

The scope of analysis will depend on the nature of the issue but may include Legal Impact; Financial/HR Implications; Student Impact; Stakeholder Implications. Pros and Cons for each option should be identified as appropriate.

Student, program, and financial information is provided in the Business Case: Conservation Biology document.

RISK CATEGORY

Select all that apply *(to check a box, double click; from drop-down menu, select "checked" under Default Value)*

☐ External Environment ☐ Internal Environment ☒ Financial ☐ Human Resources
☐ Information Technology ☐ Legal ☐ Operational ☒ Strategic ☐ N/A

The risk of not adding the Conservation Biology program is that we will fall behind the curve in terms of offering training in cutting-edge tools used in conservation biology and wildlife management.

There is a small risk that the new program will siphon off students from our established programs such as Fish and Wildlife and Ecosystem Management. Fish and Wildlife currently has a wait-list for Fall 2019, so the risk of creating unsustainably low Fish and Wildlife enrollments is slim. Furthermore, since we will develop clear pathways between both programs, we should increase the number of students participating in both programs and staying with us for 3 years instead of 2. The addition of the Conservation Biology program will allow Fish and Wildlife to focus on wildlife management which should allow it to attract students with that interest. Finally, the Conservation Biology program is unique enough that we expect it will draw new students who didn't consider the Fish and Wildlife program.

Investment in a PCR state-of-the-art lab is a financial risk if the college is unable to attract and to continue to attract students to this program. This equipment will initially require space, delivery and set-up labour. Over time, the equipment will require maintenance, calibration and possible replacement. In order to mitigate the risk in investing in PCR equipment, the School of Environmental and Natural Resource Science would develop more programs that use this technology, and create partnerships with other organizations such as CAWT. There may also be opportunities for additional funding through applied research partnerships and possible additional funds generated through training opportunities offered by Continuing Education.

RECOMMENDATION AND/OR MOTION *(i.e. Receive the update on Winter Enrolment for information. Refer the matter to Committee for further investigation. Approve the proposed xyz program of instruction.)*

It is recommended the Board of Governors of Sir Sandford Fleming College:

Approve the Conservation Biology Ontario College Diploma program with an implementation date of September 2019, for submission to the Ministry of Training, Colleges and Universities for funding approval.

SUPPORTING DOCUMENTATION

Business Case: Conservation Biology

BUSINESS CASE

Conservation Biology

Date:	May 14, 2019		
Board of Governors:	☐ Feedback	☒ Decision	
Proposed By	Brett Goodwin, Dean		
School of Study:	School of Environmental and Natural Resource Sciences		
Proposed Launch Date:	Fall 2019 (soft launch Year 1)		
Offering:	☒ Full-Time	☐ Part-Time	
Student Enrolment Target:	YEAR 1 = 20	YEAR 3 = 60	YEAR 5 = 90
New Faculty Resources	1 FT faculty, contract faculty as required		
Semesters / Hours:	4 Semesters/1351 Hours		
Applied Learning Method(s):	☒ Applied Project	☐ Co-op/Placement	☐ Other
First Graduating Class	Class of 2021		
Credential Ontario College (OC):	☒ OC Diploma ☐ OC Advanced Diploma ☐ Fleming College Diploma	☐ OC Certificate ☐ OC Graduate Certificate ☐ Fleming College Certificate	
Program Mapping:	Appendix I		
Career Opportunities:	Aquaculture Technician, Aquatic Biology Technician, Biological Technician/Technologist, Conservation Technician, Ecological Technician/Technologist, Fisheries Technician/Technologist, Mammalogy Technician/Technologist, Marine Biology Technician/Technologist, Natural Resources Technician – Biology, Ornithological Technician/Technologist, Species At Risk Technician, Wildlife Biology Technician, Wildlife Resources Technician, Wildlife Technician/Technologist, Zoo Foreman/Woman, Zoological Technician/Technologist		
NOC code(s):	NOC 2221, NOC 2224		
CIP code(s):	CIP 26.1307: Conservation biology		
Proposed Tuition (per Semester):	$2,751		
Program Start-up Cost:	($231,428) (Year 1)		
Program Operating Cost:	YEAR 2 = $425,057	YEAR 4 = $941,470	YEAR 6 = $1,105,216
Return on Investment:	YEAR 2 = ($26,960)	YEAR 4 = $1,059,502	YEAR 6 = $2,722,311
OCQAS Program Validation	☐ Pending	☒ Approved	APS Number: FLEM01304

Endorsed:

☐ Aboriginal Education Council
☒ Academic Council
☐ Deans Council
☐ Deans and Chair Committee
☒ Executive Leaders
☒ Program Advisory Committee
☒ Strategic Enrolment Management
☐ Other: _____

Acknowledgements

Thank you to the members of our Conservation Biology Academic Development Team for their dedication and excellent work in engaging the college community in consultations, research, writing, and responding to feedback. Over the course of our planning and approval process this team involved Brett Goodwin, Linda Poirier, Tania Clerac, Josh Feltham, Christina Davy, Mark Peck, Burton Lim, Kris McBride, Bonnye Fusco, Kirstin Parry and Shannon Hayes.

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1. Executive Summary

Fleming College's School of Environmental and Natural Resource Sciences (SENRS) has an established reputation of delivering quality environmental and natural resource science programming. The school is unique in that it attracts students mainly from outside our local catchment area. In order to expand and occupy an unfilled niche in environmental college programming in Ontario, we are proposing the addition of a four-semester Conservation Biology Ontario College Diploma program at SENRS.

This face-to-face program will include an enhanced applied research component whereby students complete applied research projects in their fourth semester. The program will focus on the conservation of at-risk animal populations using current research, technologies and sampling tools and protocols. This program will be unique to SENRS in that it will focus on the use of genetics in animal biodiversity conservation. The emerging use of genetics and environmental DNA (eDNA) in conservation biology will also be a focus of the applied research projects within the program.

Employment within this field often requires a graduate to have several credentials and current, applied skills. Students will benefit from the additional credential choice this diploma will provide, as well as, the pathways that this program will create. A 2+2 agreement with Trent University and other universities will be pursued and internal dual diploma pathways will be created. Students will also be able to ladder into many of the related Ontario College Graduate Certificate programs also offered at SENRS (e.g., Conservation and Environmental Law Enforcement, Applied Planning – Environmental, Aquaculture Co-op). The program will also include an advanced standing option for university graduates to enter third semester in order to obtain more applied training in the field of conservation biology including an applied research project. The hope of this program is to engage our students in applied research that is current and relevant in the field of animal biodiversity conservation.

2. Program Description

The Conservation Biology program will be a two-year, four-semester program offered by the School of Environmental and Natural Resource Sciences that provides the student with a broad background in skills in animal biodiversity conservation. Fieldwork and laboratory work specific to conserving animal populations will be carried out regularly with an emphasis on genetic and tissue sampling. Students will develop skills and knowledge in identifying at-risk aquatic and terrestrial animals, assessing their risk factors (e.g., habitat requirements, susceptibility to disease, etc.), and genetic and tissue sampling. Students will also perform field surveys and complete an applied research project specific to the field of conservation biology.

2.1. Program Mapping

Vocational Learning Outcomes

The graduate has reliably demonstrated the ability to:

1. collect field data, laboratory data, as well as access and retrieve publicly available data, in accordance with industry and government protocols and procedures for analysis and presentation to peers, industry and government partners and public
2. employ current, accepted protocols, tools and technologies to sample, monitor and assess animal populations and their related habitats in accordance with industry and government standards
3. safely use all tools, materials, equipment and machinery, appropriately and in compliance with industry and government safety and operating standards, to ensure optimum health and safety of self, team members and the environment
4. accurately identify a wide range of biota to effectively conserve at risk animal populations and their habitats in accordance with industry and government standards
5. classify terrestrial and aquatic habitats using industry and government accepted protocols and assessment tools to effectively conserve at risk animal populations
6. assess various biological and genetic parameters of animals using industry and government accepted protocols and assessment tools to effectively conserve at risk animal populations
7. apply chemical, biological, ecological and genetic principles to the conservation of at risk animal populations and their habitats in accordance with industry and government standards
8. apply established animal biodiversity and conservation research to develop sustainable recovery plans to effectively sample, monitor or assess animal populations and their habitats using industry and government sampling protocols and assessment tools
9. research current and emerging animal biodiversity and conservation issues, policies and regulations that support and guide recovery planning and management practices locally, provincially, nationally and internationally
10. effectively use computer applications and geospatial analysis tools, to present animal biodiversity and conservation data and analysis to industry and government standards
11. act in accordance with norms and industry/government codes of ethical and professional practice when conducting laboratory work, fieldwork, and/or on social media.

Below is a chart of the course names, hours and delivery breakdown by semester (lec = lecture, lab = laboratory, sem = seminar, SDL = student directed learning, GLH = guided learning hour).

Conservation Biology Ontario College Diploma mapped to MTCU code 52709 – Fish and Wildlife Technician				
Semester	Course Code	Course Name	Hours	Delivery
1	MATH 63	Applied Mathematics in Natural Resource Sciences	45	1-1 hr lab, 1-2 hr lab
1	COMM 201	Communications I	45	1-2 hr sem, 1-1 hr lab
1	ENVR 20	Ecology and the Environment	60	2-1 hr lec, 1-2 lab, 1-1 hr GLH
1	ECOS 13	Ecosystem Skills	60	1-1 hr lec, 1-2 lab, 2-1 hr GLH
1	GEOM 122	Geospatial Data Techniques	90	1-1 hr lec, 1-3 hr lab, 1-1hr lab1-1hr SDL
1	GNED 49	Introduction to Indigenous Studies	45	1-1 hr lec, 1-2 hr sem
				Total Semester 1 Hours: 345
2	COMM 202	Communications II	45	1-1 hr lec (online), 1-1 hr lab, 1-1 hr sem
2	SCIE 62	Introductory Chemistry	45	2-1 hr lec, 1-2 hr lab every other week
2	FSTY 50	Trees and Shrubs of Ontario	60	1-2 hr lec, 1-2 hr GLH
2	FIWI 41	Wildlife Observation Skills	45	1-1 hr lec, 1-2 hr lab
2	FIWI 42	Aquatic Studies	45	1-1 hr lec, 1-2 hr lab
2	GNED	General Education Elective	45	n/a
2	NEW 1	Introduction to Animal Biodiversity Conservation	60	1-1 hr lec, 1-3 hr lab
				Total Semester 2 Hours: 345
3	NEW 2	Aquatic and Terrestrial Ecosystems	45	1-1 hr lec, 1-2 hr lab
3	ORGB 22	Applied Human Relations I	21	Modular (5-2 hr sem/workshop, 1-11 hr SDL)
3	GEOM 34	Introduction to Vector GIS	45	1-1 hr lec, 1-2 hr lab
3	NEW 3	Biodiversity of Vertebrates	60	1-1 hr lec, 1-3 hr lab
3	NEW 4	Biodiversity Conservation Field Techniques	60	1-1 hr lec, 1-3 hr lab
3	NEW 5	Field Camp	40	Experiential Learning
3	MATH 25	Statistics	45	1-1 hr lec, 1-1 hr lab, 1-1 hr sem

				Total Semester 3 Hours: 316
4	GEOM 16	Ecosystem Management Geomatics	45	1-1 hr lec, 1-2 hr lab
4	NEW 6	Biodiversity of Invertebrates	60	1-1 hr lec, 1-3 hr lab
4	NEW 7	Biodiversity Conservation Lab Techniques	60	1-1 hr lec, 1-3 hr lab
4	LAWS 56	Natural Resources Law	30	1-1 hr lec, 1-1 hr sem
4	NEW 8	Biodiversity Conservation Management	45	1-1 hr lec, 1-2 hr lab
4	NEW 9	Applied Research Project	60	Experiential Learning
4	GNED	General Education Elective	45	n/a
				Total Semester 4 Hours: 345
				Total Program Hours: 1351

2.2. Essential Employability Skills

All program courses are mapped to the essential employability skills. The mapping can be found in the completed CVS application in Appendix I.

3. Fleming Student Fundamentals

3.1. The Ideal Student

The ideal student is passionate about conserving the world's animal biodiversity. To ensure success, students will need to be able to work in challenging outdoor situations and in all weather conditions, have strong analytical skills, be willing to work throughout the province and beyond, and be able to work safely and collaboratively with others.

3.2. Admission Requirements

An Ontario Secondary School Diploma (OSSD) or equivalent, mature student status OSSD including Grade 12 C English and Grade 12 C Math. Completion of Grade 12 C/U Biology and Chemistry will be recommended.

Although not an admission requirement, Conservation Biology students will be required to show proof of an adequate titre from rabies vaccination before they enter into semester 3 of the program. This will apply to all students including those who may transfer into or enter the program with advanced standing. Students will handle mammal carcasses so, for health and safety reasons, those who do not provide proof of an adequate titre will not be permitted access to the Pathology Lab nor will they be able to complete the program successfully.

3.3. Student Target Audience and Student Demand for Program

This program will target new students wishing to study animal biodiversity conservation and complete applied research in this field. The current Fish and Wildlife program is oversubscribed and many students within this program have voiced a desire to take a more conservation-focused program than what the current Fish and Wildlife program offers. This program would provide an option for those students who wish to be conservation focused at the species population level. The program will also target university graduates of Conservation Biology who wish to obtain more hands-on experience and skills in this field.

3.4. Student Benefits

This new program will be the only program in the Ontario college system that focuses solely on applied skills in the animal biodiversity conservation field. The program will allow students in this field to gain additional credentials and will specifically attract new university graduates that wish to gain more hands-on, applied skills in addition to their bachelor's degree in Conservation Biology. Students will also benefit from completing an applied research project in the field of conservation biology by gaining skills needed to complete research and networking with professionals in the field. If a PCR lab were created, students would also benefit from using state-of-the-art DNA analysis equipment.

The program will also allow for students to ladder into Ontario College Graduate Certificates or obtain dual diplomas in other SENRS programs with one additional year of training. It is anticipated that the program will articulate a 2+2 articulation agreement with the Trent University Bachelor of Science degree in Conservation Biology. In the fields of conservation biology and fish and wildlife, graduates often need to string a number of temporary jobs together before landing a more permanent position. Graduates with a greater range of credentials (e.g., two diplomas, or a degree and diploma) have a greater chance of obtaining these initial temporary positions.

Lastly, the program will quickly apply for the Indigenous Perspectives Designation (IPD) providing students with the option of completing the Designation. The purpose of the IPD is to provide students who choose to access this optional learning with a more in-depth knowledge of Indigenous (First Nations, Métis and Inuit) peoples, their cultures, histories, traditions and contributions to our shared society.

3.5. The Student Experience

Fleming College has a long and established reputation of delivering environmental programming in Ontario. Frost Campus is located on over 150 acres of land close to

downtown Lindsay. This land offers space with several different habitats and animal populations that will enhance the applied learning in this program.

The campus proper, offers infrastructure to support advanced GIS training, fully functioning pathology labs, chemistry labs and a dedicated fisheries lab space. In addition, the campus offers a fully functioning Bio-diversity Commons to support environmental student learning. This common area is home to hundreds of pieces of equipment and study samples that are available for student use as well as computers and microscopes set up in the common area. Students have the ability to sign out equipment for field exercises or view study specimens in the Bio-diversity labs.

Frost campus also benefits from several partnerships with environmental organizations, government departments and conservation areas. There will be opportunities for students in this program to network with industry professionals as well as participate in applied research in the field of animal biodiversity conservation.

The Continuing Education department located at Frost campus offers additional certifications that may be of interest to students studying and working in this field. For example, the following courses are currently available: Wilderness and Remote First Aid, Restricted Radio Operator, Hike Leader and Leave No Trace Certifications, or Ecologically Sustainable Trails.

Lastly, the campus offers residence life, health services, career services, athletics and recreation facilities and services, a learning commons, and a library with a large collection of environmental resources. The campus also offers numerous activities and clubs such as the unique Loggersports competitions.

3.6. Education Pathway Opportunities

Students will benefit from the additional credential this diploma will provide as well as the pathways that this program will create. A 2+2 agreement with Trent University and other universities will be pursued and several internal dual diploma pathways will be created along with the ability for the student to ladder into Ontario College Graduate Certificates in Conservation and Environmental Law Enforcement, Applied Planning – Environmental, or Aquaculture Co-op. The program will also include an advanced standing option for university graduates to enter third semester. Students may also opt to complete the Indigenous Perspectives Designation while completing their diploma. This training is particularly important and relevant in the field of animal biodiversity conservation.

3.7. Value Proposition

This new program will be the only program in the Ontario college system that focuses solely on applied skills and research in the animal biodiversity conservation field. The

program will allow students to gain additional credentials and will specifically attract new university graduates that wish to gain more hands-on, applied skills in addition to their bachelor's degree in Conservation Biology. Students will also benefit from the applied research project that is a main component of this program. The skills and networking gained from completing this program will give these students a leg up on the competition.

In both the conservation and fish and wildlife fields, graduates often need to complete a number of temporary jobs before securing a more permanent position. Graduates with a greater range of credentials (e.g., two diplomas, or a degree and diploma) have a greater chance of acquiring those initial temporary positions. In addition, it is anticipated that the program will articulate a 2+2 articulation agreement with the Trent University Bachelor of Science degree in Conservation Biology or other universities with similar degrees.

4. Strategic Alignment

4.1. Strategic Mandate Agreement

This program aligns with the first priority of the 2017-20 Strategic Mandate Agreement, Program Enrichment and Growth, in that this program will attract more students to a new specialized program in the environmental field. Thus, this program will build on the quality of our core environmental programming to better prepare our students.

This program also aligns with the second priority, Student Success First, in that the program will include courses focused on transferrable skills (e.g., ORGB 22 - Applied Human Relations I) and the program will increase pathway opportunities for students including an option to complete the Indigenous Perspective Designation. The program will also build new partnerships and deepen industry relationships by offering an applied research project as a main component of the program's curriculum. Thus, the program will also align with the third priority of Discovery and Innovation and the fourth priority Sustainability by expanding the college's applied research activity related to ecosystem sustainability (i.e. conducting research with the end goal of increasing animal biodiversity).

4.2. Fleming College Strategic Plan

Fleming College is currently in the process of developing a new Strategic Plan. The new priorities identified are as follows: New Programming, Quality, Preferred Graduates, Superior Student Experience, Invest in People, and Embedded in the Community. This program aligns with all of these priorities.

This program will first fill a gap in programming offered by the School of Environmental and Natural Resource Sciences and thus aligns with the priority of creating New Programming. Secondly, this program will align with our Quality priority by employing top industry experts to develop and deliver the curriculum as well as offer an applied research opportunity for students through partnerships that will ensure quality and alignment with industry activities.

This program will produce Preferred Graduates by providing training that is unique in the field of conservation biology in Ontario. The training will be specific, applied, hands-on and meet the current and future needs of employers. Universities that currently offer this training are focused more on theoretical training and university graduates are presently enrolling in college to gain these hands-on skills. The program will create a pathway for these university graduates to gain these skills in one year. In addition, the program will focus on transferable skills identified by our employers as the top skills in demand. Our graduates will gain these skills through course work, working with professionals on applied research projects, and through curriculum that is focused on professionalism as seen in one of our vocational learning outcomes: *act in accordance with norms and industry/government codes of ethical and professional practice when conducting laboratory work, fieldwork, and/or on social media*.

Next, this program also aligns with the priority of Superior Student Experience. The School of Environmental and Natural Resource Sciences has a reputation of providing quality programming in the environmental field. The campus boasts over 150 acres of land for students to conduct research, gain field skills and explore. Students will have access to the Bio-diversity Commons to support environmental student learning and experts in the field of animal biodiversity conservation. The program will offer mostly face-to-face courses, including a field camp and an applied research project. These applied learning experiences are often highlighted as some of the best experiences in a student's college experience. In addition, the program will pursue international opportunities to create a superior student experience.

The School of Environmental and Natural Resource Sciences will also Invest in People by hiring one new full time faculty to deliver the program curriculum and by fostering partnerships with industry professionals and organizations.

Lastly, the program will be Embedded in the Community. Fieldwork and local species population studies/surveys will be conducted in the Lindsay community to improve understanding of the local faunal biodiversity. Partnerships will be established with local conservation authorities, and environmental groups to increase knowledge and awareness of animal biodiversity conservation in the local community.

4.3. Fleming College Business Plan

This program aligns with the first priority of the 2018-2019 Business Plan by improving and further customizing the student experience. The present Fish and Wildlife program does not offer the training that some students seek and this program would fulfill this gap thereby improving the student experience for these students. This can be done with minimal risk to the over-subscribed Fish and Wildlife program.

This program also aligns with the second priority of the 2018-2019 Business Plan by continuing to differentiate the environmental programming at the School of Environmental and Natural Resource Sciences.

4.4. Fleming College Academic Plan

The program aligns strongly with three academic priorities. First, the program aligns with the Program Strategy and Quality Assurance priority of the Academic Plan by continuing common and core program development with differentiation as a key principle and expanding our leadership role in specialized programming areas at SENRS. This program will expand the offerings within the environmental conservation field thereby furthering our leadership role in applied training in this field.

Secondly, the program aligns with the Pathways priority of the Academic Plan by giving our students opportunities to move between Fleming programs and between institutions. The program offers several pathway options within the School of Environmental and Resource Sciences. Students will be able to obtain dual diplomas with only one additional year of study or pursue an Ontario College Graduate Certificate offered by SENRS. The program will also pursue new 2+2 pathways with Trent University and the University of Guelph.

Lastly, the program aligns with the Applied Research priority of the Academic Plan by including a robust applied research component (one 60-hour Applied Research Project course in fourth semester). In addition, the school will pursue a possible research partnership with the Biodiversity Institute of Ontario at the University of Guelph.

4.5. Fleming College Sustainability Plan

This program will assist in achieving the third goal of the Fleming College Sustainability Plan 2019-2022. Because animal biodiversity conservation contributes to ecosystem sustainability, this program will assist in Goal 3: Green Curriculum. Most of the program courses will focus on the conservation of at-risk animal populations and strategies to mitigate species' loss. This in and of itself contributes to ecosystem health and sustainability. Thus, the program will enhance the existing program offerings in sustainability training.

4.6. Fleming College Internationalization Plan

The Internationalization Plan is currently under revision. Once this new plan is in place, the new program will be aligned with the plan in terms of opportunities for our international students.

Although this program is designed mainly for our domestic student market, the curriculum will include international animal conservation research, technologies and protocols. In addition, due to the close relationship this program will have with the Ecosystem Management program, it is anticipated that the international opportunities currently available to Ecosystem Management students will be extended to Conservation Biology students.

5. Environmental Scan

5.1. Labour Market

Conservation Biology does not fall under a single NOC code (EMSI Analyst). The traditional fish and wildlife management labour market has fallen under NOC 2224: Conservation and Fishery Officer. However, because of the application of new technologies involving genetic, biological, and chemical sampling/analysis carried out in conservation efforts, the conservation biology field also falls under NOC 2221: Biological Technician and Technologist occupations in Ontario.

There are approximately 3,500 people working as Biological Technicians and Technologists (NOC 2221) in Ontario. Typical employers include federal, provincial/territorial, and municipal government departments, colleges and universities, environmental consulting firms, self-employed consultant and industry firms. Most biological technologists and technicians work all year. Less than 5% of biological technologists and technicians are self-employed.

The ECO Canada Careers in Fisheries and Wildlife report last published in 2017 provides the most current, detailed data on NOC 2224 that relates to the conservation biology labour market. According to Eco Canada (2017), environmental work has been defined as those performing activities on the job with any of environmental protection, resource management, or environmental sustainability for 50% or more of his/her working time. Although core fish and wildlife workers perform various types of work, most fish and wildlife occupations are related to ten broad practice areas. Those that work in the conservation biology field fall under Wildlife Conservation and Advocacy (ECO Canada, 2017).

Lastly, the conservation biology field is unregulated and the median wage for the NOC 2221 and NOC 2224 occupational groups are $ 25.00 and $ 29.00 per hour respectively. Please see Appendix II for more details on this labour market.

5.2. Market Potential

According to the Government of Canada's Job Market Report – 2017-2019 period, the employment outlook will be ***fair*** for Biological Technician and Technologist (NOC 2221). Employment growth is expected to remain relatively stable for biological technologists and technicians over the forecast period. Ontario has a significant life sciences cluster. A few expansions have been announced by related companies which should sustain and add job openings for technologists and technicians.

The employment outlook for NOC 2224 is best described in the ECO Canada 2017 Profile of Canadian Environmental Employment. Based on ECO Canada's survey data and the fish and wildlife sub-sector growth projections, the demand for core fish and wildlife workers is expected to grow at a ***stable rate*** from 2017-2024.

Please see Appendix II for more details on Market Potential. Recent samples of employment postings may be found in Appendix III.

5.3. Soft Skill Development

Currently, the labour market still requires humans for complex thinking/problem solving, contextualized analysis, programming, machine operation/programming, tasks involving dexterity, communication (flexible, empathetic), and personal/business services requiring "human touch" (Grant, 2016). The top ten skills in our region have reported to be: oral and written communication, detail orientated, team player, working independently, clean criminal record, problem solving, integrity, organizational skills and marketing. The curriculum of this program involves soft skill development in many of these areas (specifically, these skills will be developed in the ORGB 22 - Applied Human Relations I course in semester 3).

5.4. Evidence of Need

The largest program offered by SENRS is the Fish and Wildlife Technician (two year) and Technology (three year) programs. These two programs share the same curriculum for the first two years. This program has traditionally been oversubscribed. The last five years of application, confirmation and registration data are shown in the table below.

Total Applications, Confirmations and Registrations for Fleming College's Fish and Wildlife Technician/Technology programs combined from 2014/2015 to present			
Year	Applications	Confirmations	Registrations
2014/2015	570	207	212
2015/2016	648	208	207

2016/2017	708	241	256
2017/2018	777	234	260
2018/2019*	789	227	182

*data does not include Winter and Spring Registration Data

The current Fish and Wildlife program focuses on resource management of our fish and wildlife primarily for the fishing and hunting industries. In recent years, it has been observed that many students have entered the program because currently there are no programs in the Ontario college system that deliver specific programming in the field of animal biodiversity conservation. They choose the Fish and Wildlife program because it most closely resembles what they are looking for but they are often not fully satisfied with the training they receive. The new Conservation Biology program would be highly attractive to these students. Furthermore, the creation of a Conservation Biology program would also draw students with strong interests in conservation who did not apply to the Fish and Wildlife program due to this mismatch with their interests.

Lastly, the field of animal conservation biology has increased in recent years with the global loss of species diversity due to several factors including habitat destruction, disease, and climate change. With the introduction of legislation to protect species at risk in the past 10 to 15 years, there has been a shift in government funding away from traditional fish and wildlife management to funding of species at risk assessment, monitoring and management. This has resulted in an increase in entry-level positions that are mainly focused on completing surveys and/or assessments on species at risk. Our present Fish and Wildlife program does not fully prepare students adequately for these positions as noted in several Program Advisory Committee (PAC) meetings. Fish and Wildlife PAC members have asked that more content be focused on species at risk and to include eDNA sampling (see highlighted sections of PAC minutes in Appendix IV). Although the present Fish and Wildlife program has attempted to add some additional training in this area, the limited program length does not allow enough time to adequately train in these areas. The Conservation Biology program is designed to meet this gap in skills training. In addition, students who still wish to graduate with the traditional Fish and Wildlife Technician diploma could also opt to complete the Conservation Biology program in just one additional year of studies to be better skilled to compete for these entry-level employment opportunities.

5.5. The Competition

There are no programs offering a Conservation Biology program in Ontario. The programs that most closely resemble this program are the Fish and Wildlife Technician/Technology programs. Fleming College does offer a Fish and Wildlife Technician program, but as explained in Section 5.4, this program does not meet the needs of this particular student market.

Registration data on both the Fish and Wildlife Technician and Technology programs in Ontario have been included to demonstrate the total number of students entering these programs in Semester 1 for the past four years (totals are shaded as the two programs share the same curriculum for the first two years of programming). Only Fleming College's Fish and Wildlife program is located in the Central Region of Ontario.

Total Registrations by College for Programs mapped to MTCU code 52709 – Fish and Wildlife Technician and 62709 – Fish and Wildlife Technology				
College	2017/2018	2016/2017	2015/2016	2014/2015
College Boreal* (Fish and Wildlife Technician)	30	20	17	19
College Boreal* (Fish and Wildlife Technology)	-	-	6	4
College Boreal (Fish and Wildlife) Total	30	20	23	23
Fleming College (Fish and Wildlife Technician)**	177	173	170	196
Fleming College (Fish and Wildlife Technology)**	83	83	37	16
Fleming College (Fish and Wildlife) Total**	260	256	207	212
Sault College (Fish and Wildlife Conservation Technician)	64	72	75	61

*programs offered in French only

**located in Central Region of Ontario

For a complete listing of competitor programs, please see Appendix V.

6. Community Collaboration

6.1. Fleming College Board of Governors

Item	Meeting Date	Questions and Concerns Addressed with Actions Taken

Preliminary Program Proposal	Nov. 27, 2018	Full support; Dean asked to include component of applied research into the program design.
Business Case	tbd	

6.2. Fleming College Councils and Committees

The following committees, councils and/or external community partners were consulted during our research and program development process:

☒ Academic Council Meeting Date(s): November 8, 2018

Decision/Support: supported decision; pursuing the 2+2 articulation with Trent was highlighted as desirable; student president from Frost commented she would have been interested in taking this program.

☒ Board of Governors Meeting Date(s): November 27, 2018

Decision/Support: initial briefing note and preliminary program proposal received support; feedback included a request to include a component of applied research into the program.

☒ Senior Management Team Meeting Date(s): November 2018

Decision/Support: Full support

☒ Program Advisory Committee Meeting Date(s): January 31, 2019

Decision/Support: Reference group meeting members fully supported preliminary program proposal and overview. Letters of support were provided by all attendees.

☒ Strategic Enrolment Management Meeting Date(s): Nov. 27, 2018

Decision/Support: Full support

6.3. Community, Industry, and Other Partners

Organization	Meeting Date	Input and Feedback with Actions Taken
Industry Reference Group	Jan. 31, 2019	Full support; All group members provided Letters of Support (see Appendix VI)

7. Program Implementation

7.1. Responsible School

School of Environmental and Natural Resource Sciences

7.2. Staffing Requirements

There is in-house faculty with the expertise to develop and implement this program. The School will also hire one new full time professor with expertise in genetic and eDNA sampling/analysis experience in the conservation biology field. Over half of the curriculum of this program is shared with other existing programs and is delivered by quality full time and part time faculty.

7.3. Space and/or Equipment Requirements

Space requirements will include the use of the existing pathology labs, wing and freezer storage space, use of the fisheries lab and storage space, and use of the existing chemistry labs and storage space. Additional storage space would be required for program specific equipment and consumables.

Equipment requirements will include use of some pathology equipment and the purchase of additional genetic sampling and analysis equipment (eDNA sampler, PCR equipment, etc.). The program would use existing and purchase new fish and wildlife sampling and monitoring equipment. The program will also require the use of equipment in the Bio-diversity Commons. Additionally, the program would require the use of computer labs with GIS application software for GIS courses.

The creation of a fully functioning state-of-the-art PCR lab for DNA analysis is costly. Although this lab is not required to launch this program, it would be an excellent investment in training students for future jobs. According to the report on the World Economic Forum Future of Jobs (Shank, 2016), advanced materials, biotechnology and genomics is a top-rated demographic and socio-economic driver of change. In addition, new program offerings in the genetics field could be developed that would also use this equipment and lab space. A PCR lab would require a designated space (three lab rooms with proper venting), new equipment, and regular maintenance/calibration costs. To invest in this space and equipment, would be to invest in future jobs and prosperity and give students the ability to gain the skills to analyze their own samples and contribute to applied research.

7.4. Information Technology Requirements

The existing information technology and GIS infrastructure is sufficient to meet the needs of this program.

7.5. Program Promotion Strategy (Launch plan/timelines/webpage development)

Soft launch in Fall 2019 through student program transfers in Common First Semester (because Conservation Biology will use the Common First Semester). Extra students will be admitted into Common First Semester, particularly in the Fish and Wildlife Program, in Fall 2019 to provide numbers to support this soft launch. It is common for students to switch programs during Common First Semester. Otherwise, the program

will be included in the suite of Common First Semester program offerings for the Fall of 2020. The program will also be advertised to recent university graduates in Conservation or Wildlife Biology.

7.6. Office of the Registrar

Upon final MTCU approval for funding, program specifics will be loaded into Evolve.

7.7. Timelines

Registration: Fall 2020
Promotion start date: Spring 2019
Expected launch date: Fall 2019 (soft launch)
Expected first cohort of graduates: Class of 2022
Program Review date: 2025/2026

8. Financial

8.1. Return On Investment At-A-Glance

Description	Class of '21 (Year 1) (soft launch)	Class of '22 (Year 2)	Class of '23 (Year 3)	Class of '24 (Year 4)	Class of '25 (Year 5)	Class of '26 (Year 6)
Revenue	$233,624	$547,172	$955,976	$1,641,516	$1,936,620	$1,936,620
Expenses	$215,263	$425,057	$609,560	$941,470	$1,105,216	$1,105,216
Cumulative Cash-Flow OR ROI	($149,076)	($26,960)	$359,455	$1,059,502	$1,890,906	$2,722,311

8.2. Program Costing

Please see Appendix VII for a complete costing summary.

8.3. Financial Risks

Financial risks include a drastic drop in domestic student applications to Fish and Wildlife program and related programs. This may cause overall drops in Fish and Wildlife, Ecosystem Management and the new Conservation Biology program. However, recent application, confirmation, and registration data suggests the student market is strong and will continue to be high. These programs tend not to attract international students and thus a drop in international student enrollment will have little effect.

Investment in a PCR state-of-the-art lab is a financial risk if the college is unable to attract and to continue to attract students to this program. This equipment will initially require space, delivery and set-up labour. Over time, the equipment will require maintenance, calibration and possible replacement.

8.4. Countermeasures

It is unlikely that there will be a large drop in domestic student applications to the Fish and Wildlife program as shown by the total application, confirmation and registration data over the past five years. However, the Common First Semester model with its flexibility for students to change programs by the end of week 9 will allow for redistribution of students to counter act a drop in any one program because of a large domestic student drop.

In order to mitigate the risk in investing in PCR equipment, the School of Environmental and Natural Resource Science would develop more programs that use this technology, and create partnerships with other organizations such as CAWT. There may also be opportunities for additional funding through applied research partnerships and possible additional funds generated through training opportunities offered by Continuing Education.

9. Quality Assurance

Fleming College is committed to quality assurance processes that promote excellence in the development, design, delivery, and ongoing review of new and existing academic programs. Mechanisms are in place to demonstrate accountability to Fleming College students, the Board of Governors, the Ministry of Training, Colleges and Universities, and the communities we serve that will ensure all academic program meet or exceed the relevant quality standards including an ongoing and systematic program review process. *(See College Policy #2-213: Program Quality Assurance)*

10. Conclusion / Recommendation

THAT the Board of Governors of Sir Sandford Fleming College approve the Conservation Biology Ontario College Diploma program for launch in September 2019.

11. References

Department of Employment and Social Development Canada. (2018). Retrieved from: https://www.jobbank.gc.ca/marketreport/summary-occupation/25793/22412

ECO Canada. (2017). Careers in Fisheries & Wildlife: Current Job Trends and Future Growth. Retrieved from: https://www.eco.ca/research/labour-market-information/

Ministry of Training, Colleges and Universities. (2012-2017) Ontario's Labour Market. Retrieved from: https://www.iaccess.gov.on.ca/labourmarket/search.xhtml?lang=en

Ministry of Training, Colleges and Universities. Revised. (2009) *Framework for Programs of Instruction Minister's Binding Policy Directive.* Retrieved from: http://www.tcu.gov.on.ca/pepg/documents/FrameworkforPrograms.pdf

Shank, P. (2016, March 30). 2025: How Will We Work? How Will Your Job Change? Retrieved from Association for Talent Development: https://www.td.org/Publications/Blogs/Learning-Executive-Blog/2016/03/2025-How-Will-We-Work-How-Will-Your-Job-ChangeP

12. Appendices

12.1. Appendix I: Program Map

Ontario College Quality Assurance Service

Service de l'assurance de la qualité des collèges de l'Ontario

Suite 1600, 20 Bay Street
Toronto M5J 2N8

Program Validation Decision

We have completed our validation of your application for the Conservation Biology program submitted to us on March 19, 2019 and leading to the conferring of an Ontario College Diploma.

Please accept this as our validation of your proposal. As a signal of our validation decision, we have assigned the following Approved Program Sequence (APS) number to your program: FLEM01304.

A copy of this validation decision is being sent to the Ministry of Training, Colleges and Universities (MTCU) for their information and records.

However, in keeping with the MTCU process for college program funding approvals, we have not sent your documents to the Ministry. Please be advised that you need to submit the documentation directly to the Ministry to complete the approval for funding request, if applicable.

The required documents for the Ministry's funding approval decision are the Board Attestation form, signed by your college president, the Program Delivery Information (PDI) form, and the completed Application for Program Validation form (CVS).

The Ministry will reply separately to your request for funding approval of your program.

Sincerely,

Karen Belfer
April 2, 2019

Ontario College Quality Assurance Service

Service de l'assurance de la qualité des collèges de l'Ontario

Conservation Biology

Fleming College | APS # FLEM01304 | MTCU # 52709
Ontario College Diploma | Funding requested - full-time

Purpose

This two year, four semester program provides the student with a broad background in skills in animal biodiversity and conservation. Fieldwork and laboratory work specific to conserving animal populations are carried out regularly. Students develop skills and knowledge in at risk aquatic and terrestrial animals, and their related habitats. Students will also perform field surveys, biological sampling including genetic sampling that is specific to the conservation of animal biodiversity.

Admission

Ontario Secondary School Diploma (OSSD) or equivalent, mature student status including:
English - Grade 12 (C)
Mathematics - Grade 12 (C)

Occupational Areas

The Conservation Biology program falls under two NOC codes (Job Bank):

(2221) Biological Technologists and Technicians
(2224) Conservation and Fisheries Officer

The main duties for these two occupation groups that are consistent with the Conservation Biology field are:

- Apply methods and techniques such as microscopy, histochemistry, chromatography, electrophoresis and spectroscopy
- Perform experimental procedures in agriculture, plant breeding, animal husbandry, biology and biomedical research
- Conduct field research and surveys to collect data and samples of water, soil, and plant and animal populations
- Conduct environmental monitoring and compliance activities for the protection of fisheries stock, wildlife and other natural resources
- Analyze data and prepare reports
- Perform limited range of technical functions in support of agriculture, plant breeding, animal husbandry, biology, biomedical research and environmental protection
- Generate public awareness of fish and wildlife conservation and regulations
- Conduct patrols by truck, aircraft, boat, or on foot, to ensure compliance with the provincial and federal statutes relating to fish, wildlife and the environment

• Issue license, export documents and special permits and collect royalties assessed on fish, wildlife and timber resources
• Implement and supervise approved techniques in preventing or overcoming damage caused by wildlife
• Gather resource data by making inventories of fish, collecting water samples and assisting biologists in scientific
• Conduct patrols by truck, aircraft, boat, or on foot, to ensure compliance with the provincial and federal statutes relating to fish, wildlife and the environment

Common entry level job titles include:

• aquatic biology technician
• biological technician/technologist
• conservation technician
• dairy technician/technologist
• ecological technician/technologist
• fisheries technician/technologist
• mammalogy technician/technologist
• marine biology technician/technologist
• natural resources technician - biology
• ornithological technician/technologist
• species at risk technician
• wildlife biology technician
• wildlife resources technician
• wildlife technician/technologist
• zoo foreman/woman
• zoological technician/technologist

Laddering Opportunities

From this program, students can move into existing programs offered by Fleming College at Frost Campus. These include: graduate certificate programs such as Conservation Environmental Law, Aquaculture, and Applied Planning - Environmental; an advanced diploma program such as Ecosystems Management Technology; and dual-diploma options such as Fish and Wildlife, Ecosystems Management Technician, Environmental Technician, Forestry Technician, and Earth Resources Technician.

Program VLOs

1. Collect field and laboratory data, as well as access and retrieve publicly available data, in accordance with industry and government protocols and procedures for analysis and presentation to peers, industry and government partners and public.
2. Employ current, accepted protocols, tools and technologies to sample, monitor and assess animal populations and their related habitats in accordance with industry and government standards.
3. Safely use all tools, materials, equipment and machinery, appropriately and in compliance with industry and government safety and operating standards, to ensure optimum health and safety of self, team members and the environment.
4. Accurately identify a wide range of biota to effectively conserve at risk animal populations and their habitats in accordance with industry and government standards.

5. Classify terrestrial and aquatic habitats using industry and government accepted protocols and assessment tools to effectively conserve at risk animal populations.
6. Assess various biological and genetic parameters of animals using industry and government accepted protocols and assessment tools to effectively conserve at risk animal populations.
7. Apply chemical, biological, ecological and genetic principles to the conservation of at risk animal populations and their habitats in accordance with industry and government standards.
8. Apply established animal biodiversity and conservation research to develop sustainable recovery plans to effectively sample, monitor or assess animal populations and their habitats using industry and government sampling protocols and assessment tools.
9. Research current and emerging animal biodiversity and conservation issues, policies and regulations that support and guide recovery planning and management practices locally, provincially, nationally and internationally.
10. Effectively use computer applications and geospatial analysis tools, to present animal biodiversity and conservation data and analysis to industry and government standards.
11. Act in accordance with norms and industry/government codes of ethical and professional practice when conducting laboratory work, fieldwork, and/or on social media.

Curriculum

- **MATH 63 - Applied Mathematics in Natural Resource Sciences** (Semester 1 - 45.00 hours)
  This course will enable students to apply specific mathematical concepts and acquire foundation skills important in the Natural Resource and Environmental Sciences. It is designed to complement and reinforce learning within other first semester courses and program areas.
- **COMM 201 - Communications I** (Semester 1 - 45.00 hours)
  Communications I is an introductory course that provides a foundation in college-level communications by teaching students to read critically, write appropriately for a variety of audiences, conduct and cite research, and revise for clarity and correctness. In seminars and labs, students will engage in both independent and collaborative activities, including the development of a digital portfolio designed to help them become more effective communicators in academic and professional environments.
- **ENVR 20 - Ecology and Environment** (Semester 1 - 60.00 hours)
  Learn how nature works by studying the key components of the ecosystems in the Kawartha Lakes Region. Through field and lab exploration of wild life, landforms, forests, lakes, rivers and wetlands, students will see the connections between themselves, the environment and ecosystems that surround them.
- **ECOS 13 - Ecosystem Skills** (Semester 1 - 60.00 hours)
  This course will focus on three areas of study: identification, field and lab skills. Students will identify and classify the living and non-living components of the specific ecosystems described in the Ecology and Environment (ENVR 20) course. Field skills to be developed include the ability to navigate through the natural environment and use a variety of ecosystem inventory techniques. Special emphasis will be placed on safe work habits in lab and field.
- **GEOM 122 - Geospatial Data Techniques** (Semester 1 - 90.00 hours)
  In this course, students will learn to collect, record, interpret and manage spatial and non-spatial data from a variety of disciplines within the School of Environmental and Natural Resource Sciences. The use of information technology will be used to manipulate and integrate data in a Geographic Information System, and recognized cartographic standards will be applied to create

maps for use in their field of study.

- **GNED 49 - Introduction to Indigenous Studies** (Semester 1 - 45.00 hours) (General Edu Course)
  This course is an introduction to the study of Indigenous (First Nations, Metis, and Inuit) peoples in Canada. Students will explore the complex historical and contemporary relationships between Indigenous and non-Indigenous peoples. The course will also guide students to begin to understand the diversity and depth of Indigenous societies, worldviews, and knowledge through a multi-disciplinary lens.
- **COMM 202 - Communications II** (Semester 2 - 45.00 hours)
  Communications II, building on the foundation of Communications I, is a blended course that teaches students to write and communicate for a variety of professional situations. In seminars, labs and online modules, students will develop a professional portfolio that demonstrates their abilities to meet the challenges of a changing workplace.
- **SCIE 62 - Introductory Chemistry** (Semester 2 - 45.00 hours)
  This course is designed to provide a knowledge and understanding of the principles of chemistry. The following topics: matter and energy, atomic structure, properties and nomenclature of compounds, chemical bonding, chemical reactions, solutions, acids and bases, and a brief study of organic chemistry will be presented
- **FSTY 50 - Trees and Shrubs of Ontario** (Semester 2 - 60.00 hours)
  This course deals with the identification of approximately 100 species of trees and shrubs of importance to those managing the forests resources of Ontario. Throughout the semester identification features for common trees and shrubs in both summer and winter condition are introduced and applied. A number of field trips are utilized to assist students with their identification skills. In the weekly lecture series topics such as tree growth, reproduction, photosynthesis, respiration, forest ecology and uses of trees will be introduced. At the completion of the course students will have a sound working knowledge of dendrology. The skills introduced in this semester may then be used in following semesters when working with Forest Ecosystem Classification, Restoration Ecology, Conservation Planning and other habitat management situations.
- **FIWI 41 - Wildlife Observation Skills** (Semester 2 - 45.00 hours)
  This course is an introduction to a range of skills in wildlife observation. A variety of wildlife species may be present in an environment despite not being seen. Important skills include visual and auditory identification of wildlife signs. The primary emphasis in this course will be on identification of wildlife signs such as tracks, trail patterns, scat, skulls, impacts on the environment, bird song and amphibian calls. Documentation of wildlife observation will be practiced regularly. Field guides, photography, binoculars and spotting scopes will be used to document wildlife sightings and their signs.
- **FIWI 42 - Aquatic Studies** (Semester 2 - 45.00 hours)
  Aquatic Studies is an introduction to some of the basic components and procedures involved in the study of aquatic ecosystems. Fish identification skills as well as aquatic and wetland plant identification skills will be stressed in this course. Invertebrate identification will be introduced. The students will also learn field water chemistry procedures and electrofishing techniques.
- **GNED - General Education Elective** (Semester 2 - 45.00 hours) (General Edu Course)
  Student has a choice of a number of courses offered.
- **NEW 1 - Introduction to Animal Biodiversity Conservation** (Semester 2 - 60.00 hours)
  This course introduces students to the field of animal biodiversity conservation. The diversity of animal species ranging from invertebrates to vertebrates will be studied. Historical and current conservation issues as they relate to different taxonomic groups will also be covered.

- **NEW 2 - Aquatic and Terrestrial Ecosystems** (Semester 3 - 45.00 hours)
  Students will develop skills and knowledge in the management techniques of aquatic and terrestrial ecosystems, including wetland and forest management planning. They will apply current theories of ecosystem management to aquatic and terrestrial environments by studying abiotic, biotic, and cultural components.
- **MATH 25 - Statistics** (Semester 3 - 45.00 hours)
  This course covers data organization, the basic statistical parameters, confidence intervals for means, the normal distribution, hypothesis testing (Chi-square, 'F', 't' and Anova), and regression analysis.
- **GEOM 34 - Introduction to Vector GIS** (Semester 3 - 45.00 hours)
  This is an introductory level course in Vector GIS. Students will be exposed to various components of Vector GIS, including co-ordinate systems, map projections, data sources and data structures. Students will also learn how to produce maps in order to effectively communicate geographic information. Data collection techniques will be explored through the use of a GPS receiver.
- **NEW 3 - Biodiversity of Vertebrates** (Semester 3 - 60.00 hours)
  This course examines the ecology, biology, and taxonomy of Ontario vertebrate groups. Rare and at risk species, subspecies and populations will be studied in depth. The impact of new species invasions on at risk species populations will also be covered.
- **NEW 4 - Biodiversity Conservation Field Techniques** (Semester 3 - 60.00 hours)
  Students will develop field skills associated with wildlife conservation including: presence/absence survey protocols, population assessment, wildlife habitat assessment, dietary analysis, and spatial ecology. Students will use blood and tissue sampling methods to collect samples for disease screening and DNA analysis. Much of the data collected will be used to contribute to conservation efforts in central Ontario.
- **NEW 5 - Field Camp** (Semester 3 - 40.00 hours)
  The field camp provides a range of activities where students will use surveying and monitoring techniques as well as wildlife capturing, handling and sampling protocols for the purpose of conservation.
- **ORGB 22 - Applied Human Relations I** (Semester 3 - 21.00 hours)
  This course examines self-awareness, interpersonal relations, motivation, small group dynamics, leadership, conflict management, and team success tools and strategies. Using team-based project experiences, regular discussion, debrief and personal reflection periods, the course will focus on the development and application of self-awareness to improve both the process and products of independent and team-based work.
- **LAWS 56 - Natural Resources Law** (Semester 4 - 30.00 hours)
  This course provides an introduction to laws that have an impact on the use of natural resources in Ontario. The course will deal with an overview of the legal system, the underlying principles of gaining compliance, and specific legislation that may be encountered in the natural resources field.
- **GEOM 16 - EM Geomatics** (Semester 4 - 45.00 hours)
  The course examines elementary principles of data acquisition, data management, and spatial analysis, using the raster data model. Laboratory exercises will allow students to become familiar with the operation of GIS software commonly used in the field. The students will be exposed to various hands-on projects/applications involving the use of GIS software.
- **NEW 6 - Biodiversity of Invertebrates** (Semester 4 - 60.00 hours)
  This course examines the ecology, biology, and taxonomy of selected Ontario invertebrate groups. Rare and at risk species, subspecies and populations will be studied in depth. In addition, the impact of new species invasions on at risk species populations will also be covered.

- **NEW 7 - Biodiversity Conservation Lab Techniques** (Semester 4 - 60.00 hours)
  In this course, students will apply lab techniques ranging from tissue sampling and preparation for disease screening to DNA analysis of populations. The primary focus will be on protocols associated with the handling and preparation of samples. The work students complete in this course will be used to contribute to conservation efforts in Ontario.
- **NEW 8 - Biodiversity Conservation Management** (Semester 4 - 45.00 hours)
  In this course, students will use animal biodiversity conservation research to develop sustainable recovery plans for species at risk.
- **GNED - General Education Elective** (Semester 4 - 45.00 hours) (General Edu Course)
  Student has a choice of a number of courses offered.
- **NEW 9 - Applied Research Project** (Semester 4 - 60.00 hours)
  Students will conduct research on animal biodiversity conservation. Research projects will involve multi-disciplinary, collaborative studies of real world conservation issues with an outside client, agency, or group.

VLO Mapping

Code	1	2	3	4	5	6	7	8	9	10	11
MATH 63	X										X
COMM 201											X
ENVR 20	X	X	X	X	X		X	X	X		X
ECOS 13	X	X	X	X			X				X
GEOM 122	X	X	X							X	X
GNED 49											X
COMM 202											X
SCIE 62	X	X	X				X				X
FSTY 50	X	X	X	X	X		X				X
FIWI 41	X		X	X		X	X				X
FIWI 42	X	X	X	X	X	X	X				X
GNED											
NEW 1	X	X	X	X	X	X	X	X	X	X	X
NEW 2	X	X	X	X	X	X	X	X	X	X	X
MATH 25	X									X	X

GEOM 34	X	X								X	X
NEW 3	X	X	X	X	X	X	X	X	X	X	X
NEW 4	X	X	X	X	X	X	X	X	X	X	X
NEW 5	X	X	X	X	X	X	X	X	X		X
ORGB 22											X
LAWS 56	X				X				X		X
GEOM 16	X	X			X			X		X	X
NEW 6	X	X	X	X	X	X	X	X	X		X
NEW 7	X	X	X	X	X	X	X	X	X	X	X
NEW 8	X	X	X	X	X	X	X	X	X	X	X
GNED											
NEW 9	X	X	X	X	X	X	X	X	X	X	X

EES Mapping

Code	1	2	3	4	5	6	7	8	9	10	11
MATH 63	X	X	X	X	X		X		X	X	X
COMM 201	X	X		X	X	X	X	X	X	X	X
ENVR 20									X	X	X
ECOS 13	X				X		X				
GEOM 122	X	X	X				X			X	X
GNED 49											
COMM 202	X	X		X	X	X	X	X	X	X	X
SCIE 62	X	X	X	X	X	X	X		X	X	X
FSTY 50				X	X						
FIWI 41						X	X	X			
FIWI 42				X	X						

GNED											
NEW 1	X		X	X	X			X	X		
NEW 2	X	X		X	X		X		X		
MATH 25	X	X	X	X	X	X	X		X	X	X
GEOM 34	X	X				X	X				
NEW 3	X						X		X		
NEW 4	X	X	X	X	X	X	X		X	X	X
NEW 5			X	X	X	X	X	X	X	X	X
ORGB 22	X	X		X				X	X	X	X
LAWS 56	X					X					X
GEOM 16	X	X				X				X	
NEW 6	X						X	X	X		
NEW 7	X	X	X	X	X	X	X	X	X	X	
NEW 8	X	X	X	X	X		X			X	
GNED											
NEW 9	X	X	X		X	X	X	X	X	X	X

Certification/Accreditation

Certification type:

There is no recognition (None exist)

Attachments

None

Contact Information

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12.2. Appendix II: Environmental Scan: Job Market Details

1. Labour Market

Conservation Biology does not fall under a single NOC code (EMSI Analyst). The traditional fish and wildlife management labour market has fallen under NOC 2224: Conservation and Fishery Officer. However, because of the application of new technologies involving genetic, biological, and chemical sampling/analysis carried out in conservation efforts, the conservation biology field also falls under NOC 2221: Biological Technician and Technologist occupations in Ontario.

Main duties for these two occupational groups that are consistent with the conservation biology field are:

- Apply methods and techniques such as microscopy, histochemistry, chromatography, electrophoresis and spectroscopy
- Perform experimental procedures in agriculture, plant breeding, animal husbandry, biology and biomedical research
- Conduct field research and surveys to collect data and samples of water, soil, and plant and animal populations
- Conduct environmental monitoring and compliance activities for the protection of fisheries stock, wildlife and other natural resources
- Analyze data and prepare reports
- Perform limited range of technical functions in support of agriculture, plant breeding, animal husbandry, biology, biomedical research and environmental protection
- Generate public awareness of fish and wildlife conservation and regulations
- Conduct patrols by truck, aircraft, boat, or on foot, to ensure compliance with the provincial and federal statutes relating to fish, wildlife and the environment
- Issue license, export documents and special permits and collect royalties assessed on fish, wildlife and timber resources
- Implement and supervise approved techniques in preventing or overcoming damage caused by wildlife
- Gather resource data by making inventories of fish, collecting water samples and assisting biologists in scientific
- Conduct patrols by truck, aircraft, boat, or on foot, to ensure compliance with the provincial and federal statutes relating to fish, wildlife and the environment

Common entry-level job titles for this field include:

- aquatic biology technician
- biological technician/technologist
- conservation technician

- dairy technician/technologist
- ecological technician/technologist
- fisheries technician/technologist
- mammalogy technician/technologist
- marine biology technician/technologist
- natural resources technician - biology
- ornithological technician/technologist
- species at risk technician
- wildlife biology technician
- wildlife resources technician
- wildlife technician/technologist
- zoo foreman/woman
- zoological technician/technologist

There are approximately 3,500 people working as Biological Technicians and Technologists in NOC 2221. Typical employers include federal, provincial/territorial, and municipal government departments, colleges and universities, environmental consulting firms, self-employed consultant and industry firms. The main industry/sectors in which they work are shown in the table below.

Industry/Sector	%
Federal government public administration	14
Other professional, scientific and technical services	13
Architectural, engineering and design services	13
Chemical manufacturing	11
Provincial and territorial public administration	11

The distribution of full-time and part-time workers in this occupation is:

- Full-time workers: 90% compared to 80% for all occupations
- Part-time workers: 10% compared to 20% for all occupations

Sixty-two per cent of biological technologists and technicians work all year, while 38% work only part of the year, compared to 66% and 34% respectively among all occupations. Those who worked only part of the year did so for an average of 28 weeks compared to 31 weeks for all occupations. Less than 5% of biological technologists and technicians are self-employed compared to an average of 10% for all occupations.

The median wage for the NOC 2221 and NOC 2224 occupational groups are $ 25.00 and $ 29.00 per hour respectively. Wage estimates by region can be found in the table below.

Wages estimates for positions related to Conservation Biology in Ontario

Community/Area	Low Wages ($/hr)	Median Wages ($/hr)	High Wages ($/hr)
NOC 2221			
Canada	15.00	26.97	64.10
Ontario	15.00	26.97	64.10
Muskoka-Kawartha Region	15.00	26.97	64.10
NOC 2224			
Canada	15.19	29.00	40.00
Ontario	14.00	28.00	39.29
Muskoka-Kawartha Region	n/a	n/a	n/a

The ECO Canada Careers in Fisheries and Wildlife report last published in 2017 provides the most current, detailed data on NOC 2224 that relates to the conservation biology labour market. According to Eco Canada (2017), environmental work has been defined as those performing activities on the job with any of environmental protection, resource management, or environmental sustainability for 50% or more of his/her working time. Canada's fisheries and wildlife management sub-sector is comprised of professionals who are actively involved in the management and protection of ecosystems (marine, wetland, and terrestrial), marine resources and wildlife, species at risk, and invasive species. Fish and wildlife professionals work in a broad range of occupations to solve problems, conduct research, and manage and protect fisheries and wildlife.

According to ECO Canada (2017), there are three main occupational categories in the fish and wildlife sub-sector: managers, scientists and technicians, and other specialists. In the core fish and wildlife labour force there are:

- approximately 7,700 managers working in aquaculture, fishing, game and land management. Managers represent the largest component of the fish and wildlife workforce.
- over 4,300 scientists and technicians. This group includes scientists and technicians working in life and physical sciences. Fish and wildlife scientists and technicians make up over one-third of all fish and wildlife professionals.
- over 380 specialists working in fish and wildlife. Professionals in this group have some specialization in fish and wildlife, as well as competencies in other fields such as public protection services, policy, regulation, engineering, and land use. This is the smallest group of all fish and wildlife professionals.

Although core fish and wildlife workers perform various types of work, most fish and wildlife occupations are related to ten broad practice areas (ECO Canada, 2017). Those that work in the conservation biology field fall under:

- Wildlife Conservation and Advocacy: Wildlife conservation and advocacy professionals work in natural resource conservation related to fish and wildlife, land management, ecological and biodiversity monitoring, coordination of conservation volunteers, national heritage, parks management, naturalist activities and ecotourism, and stewardship of private land. Career paths for core fish and wildlife workers begin with a relevant degree (or relevant diploma for technologists) or on-the-job training, followed by experience in one or more practice areas (ECO Canada, 2017).

Lastly, the conservation biology field is unregulated and there are no mandatory certifications needed to work as a conservation technician or technologist.

2. Market Potential

According to the Government of Canada's Job Market Report – 2017-2019 period, the employment outlook will be ***fair*** for Biological Technician and Technologist (NOC 2221). The following factors contributed to this outlook:

- employment growth will lead to a moderate number of new positions
- several positions will become available due to retirements
- there are a moderate of number of unemployed workers with recent experience in this occupation.

Employment growth is expected to remain relatively stable for biological technologists and technicians over the forecast period. Ontario has a significant life sciences cluster. A few expansions have been announced by related companies which should sustain and add job openings for technologists and technicians. Generally, some of the work opportunities within the occupational group may be affected by the amount of research grants and project funding available.

It is important to note that certain job functions do experience seasonality with levels of unemployment peaking over the winter months. This can mostly be attributed to the inability to conduct field research and collect samples during cold weather.

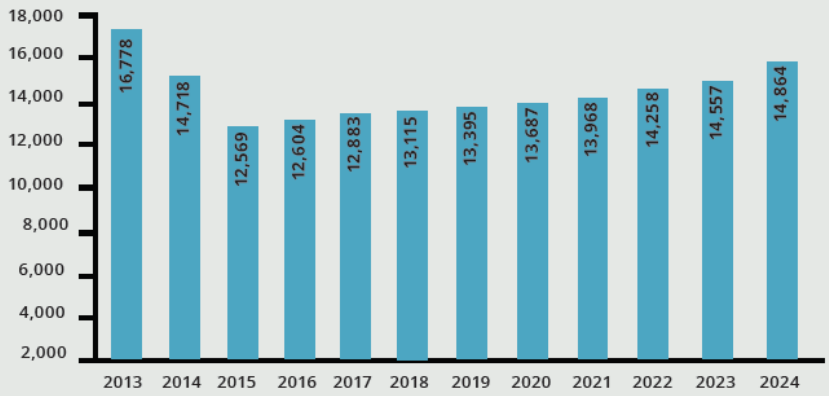
The employment outlook for NOC 2224 is best described in the ECO Canada 2017 Profile of Canadian Environmental Employment. Based on ECO Canada's survey data, and the fish and wildlife sub-sector growth projections, the demand for core fish and wildlife workers is expected to grow at a stable rate from 2017-2024 (see figure below). In addition, a 2015 survey of fish and wildlife employers found that:

- nearly one-third (31.0%) experienced an increase in environmental employment in the preceding twelve months

- nearly two-thirds (64.0%) reported they had filled vacant positions for fish and wildlife workers in 2015-16
- over two-thirds (68.0%) expected employment to remain constant for the forthcoming 2016-18 period
- replacements of existing employees due to retirements were expected to create job opportunities from 2015-24. Over half (56.0%) of fish and wildlife employers expected that some of their employees would retire between 2015-2024; of this group, 27.0% expected they would need to hire replacements by 2018. (ECO Canada, 2017)

According to ECO Canada (2017), the employment outlook for 2013-2024 for the core workers in fish and wildlife can be seen in the figure below.

Figure 1: Fisheries & Wildlife Employment Outlook 2013-2024 (Core Workers)



Source: ECO Canada Environmental Employment Outlook

Lastly, please see Appendix III for recent samples of employment postings.

12.3. Appendix III: Employment Postings

Please see the highlighted educational requirements.

SAMPLE POSTING 1

Junior Biologist / Biological Technician

Wood - Windsor, ON
Permanent

Overview / Responsibilities
Wood Environment & Infrastructure Solutions is recruiting for a Junior Terrestrial Biologist/Biological Technician to join our team. This position will be based in our Windsor, Ontario office.

Key Responsibilities:
Execution of independent field surveys for at-risk, sensitive and common species throughout Ontario using established sampling protocols and specializing in herpetofauna, vegetation, wildlife, avian and wetland ecology
Correspond with staff and clients through written and verbal methods
Organize and execute environment technical field programs with emphasis on the appropriate management and application of terrestrial ecology-based field surveys
Complete reports, with senior guidance, on a variety of topics pertaining to the natural environment and potential impacts and mitigation strategies associated with potential developments
Adhere to health and safety protocols for self and support staff
Undertake data and field sample management including, but not limited to, the collection, recording and digital filing in agreement with Wood's Quality Management System
Liaise with other technical specialists including ecologists, biologists, GIS specialists, and other applicable specialists
Providing support to project leads including scheduling, staffing, equipment maintenance and regular communication to achieve efficient, scope compliant and cost-effective assignment delivery
Contributing to the preparation of proposals and work plans for future projects
Undertake environmental construction compliance monitoring for project specific programs
As needed, undertake field work in local and remote locations in support of Environmental Impact

Skills / Qualifications
Diploma or Degree Biology, Ecology or related discipline
Biologist/Ecologist experienced with Ontario species of conservation concern and related regulations with up to 2 years of experience
Knowledge of provincial, federal and municipal environmental legislation, (i.e., Migratory Birds Convention Act, Endangered Species Act and Conservation Authorities Act) etc., guidelines, policies (i.e., official plans) and best practices
Experience in the identification of Ontario flora and fauna (trees, shrubs, grasses, wildflowers, birds, reptiles, amphibians, mammals, and/or insects). Specific knowledge of Carolinian species, specifically herpetofauna and prairie vegetation, is considered an asset

Experience conducting natural heritage inventories, with emphasis on identifying significant wildlife habitat considered an asset
Certificate and applied knowledge of the Ontario Ecological Land Classification (ELC) system and the Ontario Wetlands Evaluation System (OWES), considered an asset
Knowledge of tree inventory and tree preservation protocols and planning. Recognized certification as an arborist (ISA) (or potential to obtain) will be considered an asset
Valid Canadian Driver's License
Ability to travel from time to time

Company Overview
Wood is a global leader in the delivery of project, engineering and technical services to energy and industrial markets. We operate in more than 60 countries, employing around 60,000 people, with revenues of over $10 billion. We provide performance-driven solutions throughout the asset life cycle, from concept to decommissioning across a broad range of industrial markets, including the upstream, midstream and downstream oil & gas, power & process, environment and infrastructure, clean energy, mining, nuclear, and general industrial sectors.
www.woodplc.com

Diversity Statement
We are an equal opportunity employer that recognises the value of a diverse workforce. All suitably qualified applicants will receive consideration for employment on the basis of objective criteria and without regard to the following (which is a non-exhaustive list): race, colour, age, religion, gender, national origin, disability, sexual orientation, gender identity, protected veteran status, or other characteristics in accordance with the relevant governing laws.

SAMPLE POSTING 2

Habitat Restoration Field Assistant
Conservation Halton - Burlington, ON
Contract, 4 months starting May 9th

This position is dependent on Conservation Halton being awarded funding. Applicants must be between the ages of 15 and 30 to be considered eligible.

Conservation Halton was created to protect, restore and manage the natural resources in our watershed but we have grown to become so much more. Today, we protect our communities and conserve our natural environment through planning, education and recreation and to support our partners in the creation of sustainable communities within our watershed.

Our strategic plan, Metamorphosis, continues to drive us to embrace more innovative ideas to communicate and collaborate more effectively, create the capacity for us to form new partnerships and position us to become leaders in conservation. We are looking to build our team with the kind of inspired, ambitious people that aren't satisfied with the status quo, that see the opportunity in every challenge, are driven by measurable results and thrive in a busy work environment. If you are looking to join an environmentally-focused, socially-conscious community organization, then we are looking for you!

Your Opportunity
The Habitat Restoration Field Assistant will assist with the implementation of stewardship

activities by Conservation Halton. Through our stewardship program we encourage, empower and assist private landowners in their role of protecting, enhancing and restoring the natural features of the land they own.

Implementation of rehabilitation projects (low to mid-level complexity) will involve planning, permitting, liaising with CA and other agency staff, directing consultants and contractors, directing volunteers, communicating with landowners and monitoring results post rehabilitation. Reporting to the Watershed Stewardship Coordinator, the Habitat Restoration Field Assistant will:

Assist with the implementation of habitat and water quality improvement projects.
Support the stewardship technicians, restoration technician and program coordinator by undertaking project tasks as assigned.
Coordinate and manage volunteers of all ages and abilities during rehabilitation projects.
Record and assist with the maintenance of statistics associated with projects undertaken in the Stewardship Database.
Conduct habitat and vegetation inventories to aid in restoration planning.
Conduct pre- and post- rehabilitation monitoring.
Follow Conservation Halton's Health and Safety procedures.
Other duties as assigned.

Your Qualifications
Previous work or volunteer experience in a related field
University degree or college diploma in ecosystem restoration, biology, ecology, geography or fish and wildlife management
Ability to work evenings and weekends as required.
Effective communication skills, written and oral
Efficient problem solving, multi-tasking and creative thinking skills
Knowledge of local ecosystems, including species at risk, vulnerable habitats, land management techniques, principles and applications
Knowledge of bioengineering techniques, methodology and principles
Experience implementing rehabilitation projects that involve bioengineering
Knowledge of regulations and legislation associated with all levels of government (federal, provincial and municipal) as it relates to restoration projects
Valid driver's licence

Youth Eligibility
This opportunity is funded by the Canada Summer Jobs program. As a result, the successful applicant must meet the following criteria:

Between the ages of 15 and 30 (inclusive) at the time of intake/selection;
Canadian citizens, permanent residents, or persons who have been granted refugee status in Canada;
Legally entitled to work according to the relevant provincial/territorial legislation and regulations;
Your Reward
Starting at $15.00 per hour based on a 35 hour work week
You will join the organization at one of the most exciting times in our 60 year history
You will have the opportunity to work with a solutions-focused team, and to develop your skills
You will work for an organization that places tremendous value on the professional and personal development of its employees
At Conservation Halton, we offer a robust total rewards package, including:

Competitive salary
Free access to Conservation Ontario parks
Season passes and lift tickets for the Glen Eden ski hill
Generous discounts on Conservation Halton services, food and merchandise
Our Core Values
Be Respectful: Respect one another, celebrate diversity, and embrace new ideas.
Be Adaptable: Change is constant. Channel your passion, be innovative, and focus on results.
Be Collaborative: Share your knowledge, listen to understand, and always communicate clearly.
Be Sustainable: In everything you do, think conservation.
Be Accountable: Uphold your integrity, demonstrate measurable progress, and strive for excellence.

To Apply
Please email your application to careers@hrca.on.ca by Wednesday March 13th, 2019

You application should include:
A one page cover letter, and your resume in one pdf document
Reference your name and the position title in the subject line
In the body of your email, please indicate where you heard about this opportunity
We thank all applicants for their interest however only those selected for an interview will be contacted.

Conservation Halton is an equal opportunity employer in accordance with the Accessibility for Ontarians with Disabilities Act, 2005 and the Ontario Human Rights Code. Conservation Halton will provide accommodations throughout the recruitment, selection and/or assessment process to applicants with disabilities. Personal information provided is collected under the authority of The Municipal Freedom of Information and Protection of Privacy Act.

SAMPLE POSTING 3

Stewardship Technician
Thames Talbot Land Trust - London, ON
Temporary

The Stewardship Technicians will be working on management of several TTLT conservation properties. This is an opportunity to build your skills and experience in conservation and restoration of natural ecosystems. Stewardship Technicians primarily work outside in nature and contribute to a range of restoration and property management projects.

Major Duties and Responsibilities:
Removal of invasive plant species from properties (hand pulling, cutting using hand tools and pesticide application under proper supervision)
Assisting with ongoing inventory of natural features including plants and animals, including data entry
Assisting with species at risk inventory and monitoring
The creation and maintenance of trails and trail structures
Other property management duties as required (installing signage, repairing fences etc.)

Assisting with public events including volunteer workdays, high school field trips, guided hikes, and other local events
Assisting in the preparation of educational materials (e.g. trail guides, pamphlets, signs, web pages

Experience, Abilities & Skills:
Completing, or intend to complete, a post-secondary education with a specialization in environmental studies, ecology, biology or related field
Previous experience and enthusiasm working outdoors, off trail, in all weather and conditions (eg. rain, heat, mosquitoes), as much of the job will take place in the field in remote locations
Good knowledge of the flora and fauna of southern Ontario so that invasive species or sensitive species (including species at risk) will be recognized in the field
Good writing and communication skills, and ability to develop and maintain good working relationships with staff, volunteers and community partners
Excellent planning, organization, attention to detail, and time management skills
Imagination, forethought and sense of humour dealing with unexpected situations and complex stewardship requirements
Previous experience working with environmental conservation projects would be an asset
A valid Ontario driver's license would be an asset
The ability to occasionally use your own laptop for this position would be an asset
Basic First Aid training and WHMIS certification would be assets

Eligibility:
Participant must be between 18 and 30 years of age (inclusive) at the start of employment
Participant must be legally entitled to work in Canada
Participant must be a Canadian citizen, permanent resident, or person to whom refugee protection has been conferred
Please note this position, including the start date and duration of employment, is dependent upon funding.

Accommodation will be provided in all parts of the hiring process as required under the Accessibility for Ontarians with Disabilities Act (AODA), Integrated Accessibility Standards Regulation. We request that applicants please communicate specific needs to facilitate planning.

Please email your application to ashley.turner@ttlt.ca by April 7th.

Please combine your cover letter and resume into a single PDF
The name of the PDF should be your name
The subject of the email should be "Stewardship Technician"
We thank all applicants for their interest however, only those selected for an interview will be contacted.

Special thanks to the Government of Canada and the Canada Summer Jobs program for making these positions possible.

SAMPLE POSTING 4

Organization: Creston Valley Wildlife Management Area
Location: Creston, British Columbia
Period: April 8th to October 11th, 2019
Posted: Tuesday February 12th, 2019
Closing Date: Friday March 8th, 2019 – 16:30 (Mountain Time)

ABOUT THE CRESTON VALLEY WILDLIFE MANAGEMENT AREA
The Creston Valley Wildlife Management Area (CVWMA) is a 7,000-ha internationally recognized wetland under the Ramsar Convention on Wetlands, providing habitat for a wide variety of birds, fish, mammals, reptiles, amphibians, plants, and invertebrates. CVWMA is a governmental non-profit organization that was established in 1968 to conserve and manage the wetland, in particular waterfowl. The CVWMA is also an Important Bird and Biodiversity Area and an Important Amphibian and Reptile Area, in Canada.

CVWMA is looking for a driven and passionate Wildlife Technician to conduct wildlife monitoring and surveys for a variety of wildlife species. This position will offer the successful candidate the chance to apply and grow his or her knowledge and skills directly in the field.

Working closely with the Conservation Programs Assistant, the Wildlife Technician will have responsibilities around all aspects of field surveys including data collection and management, equipment use and maintenance, scheduling or time management, and safety.

DUTIES
The Wildlife Technician may be directly involved with the following projects and activities (not exclusively):

Avian Monitoring Studies:

- Boat and aerial surveys for waterfowl;
- Call-playback surveys for marsh birds;
- Census and evaluation of breeding success for Western Grebe, Forester's Tern, and Double-crested Cormorant; and
- Nest monitoring for Barn Swallow.

Amphibian and Reptile Monitoring Studies:

- Northern Leopard Frog monitoring, including collaborating with the Recovery Team and providing field support (e.g., calling surveys, egg mass surveys);
- American Bullfrog monitoring (e.g., deploy and analyze acoustic recordings, "electro-frogging"); and
- Western Painted Turtle monitoring (e.g., nesting habitat maintenance and monitoring).

Other activities – may be required to assist with:

- Counts of bats using infrastructure on the CVWMA
- Mapping and/or removal of invasive species, e.g., yellow flag iris, common reed;
- Public education activities; and
- Writing of survey/monitoring report/summaries.

QUALIFICATIONS
The candidate must have a College Certificate or University degree (undergraduate) in natural resource management field such as fish and wildlife management, wildlife biology, ecology, protected areas management, environmental science, conservation, or other closely related disciplines.

Preference will be given to candidates with:

- Strong ornithological skills, i.e. bird identification by sight and sounds;
- Experience identifying and working with amphibians and reptiles;
- Experience with waterfowl surveys, including aerial surveys;
- Experience with the use of call playback equipment, acoustic recorders, trail cameras, water monitoring instruments, and data loggers;
- Experience analyzing acoustic recordings (with Kaleidoscope Pro or Raven Pro software);
- Experience working in and good knowledge of wetland ecosystems;
- Experience with data management software (e.g., MS Excel, FileMaker Pro)
- Experience with navigating in the field with use of GPS

Other desirable abilities and skills:

- Very good oral and written communication;
- Work safely and effectively in team, or alone;
- Maintain a high degree of judgement, discretion and decision making;
- Leadership and project management.

CERTIFICATION

- Valid Class 5 British Columbia, or equivalent Canadian Driver's License;
- Valid Occupational First Aid certification (Level 1);
- Pleasure Craft Operator License.

WORKING CONDITIONS
Most work will be conducted outdoor in often very wet and very hot conditions. Very buggy conditions (mosquitoes) must be expected during the summer. Work hours (day time and night time) may vary weekly, up to 35-40 hrs per week (from Sunday to Saturday).

PHYSICAL REQUIREMENTS
Candidates should be in good health and physical conditions. The job often requires working with chest/hip waders in muddy conditions and may require lifting/pulling of heavy objects.

PAY RATE
$20.00 – 22.00/hour

APPLICATION
The deadline for applications is Friday March 8th, 2019 – 16:30 (mountain Time)
To apply for this position, submit the following items in your application package (in Word or PDF files) to Marc-Andre Beaucher at resumes@crestonwildlife.ca:
1. Cover letter explaining why you are qualified for this position and how you meet the qualifications

2. Resume
3. Name, daytime phone numbers, and email addresses of three professional references, one being a current or recent supervisor.

Marc-André Beaucher
Head of Conservation Programs
Creston Valley Wildlife Management Area
e-mail: resumes@crestonwildlife.ca

Please note: Faxes will not be accepted and only those applicants chosen for interviews will be contacted.

12.4. Appendix IV: Fish and Wildlife Program Minutes

Please note the highlighted excerpts in the following minutes.

Fleming College
LEARN | BELONG | BECOME

Program Advisory Committee Meeting Minutes

Program Name:

Meeting Date: Mar.-22-18 Time: 12:00 AM | Location: 200 Albert Street South, Lindsay, ON K9V 5E6

Attendees:	Andrea Vanderburg (Sophie's proxy), Dave Copplestone, Danny Bernard, Brett Tregunno, Gina McVeigh, Chris Ellingwood, Murray Hall, George Cimbura, Gerry Sullivan
Fleming:	Brett Goodwin, Marie Walden-Oulahen, Anne Torwesten, Ron Macdonald, Paul Ashley, Tanya Rice, John Knight, Thomas Luloff, Tom Brooke, Brian Round
Students:	Nicole Nolan, Lindsay Jackson, Joshua DeJong, Toni Head-Schraa, Craig Pezik
Recorder:	Jen Lee
Regrets:	Harry Szeto, Brad McNevin, Matt Purvis

Agenda Items

1) Call to Order—Welcome and Chair Remarks

The Chair, Murray Hall, called the meeting to order at 12:22 PM.

The Chair welcomed committee members to the meeting and members introduced themselves.

2) Conflict of Interest

Action Required: No Conflict of Interest declared

3) Approval of Agenda

Agenda was accepted as circulated with the following additions (if any):

The students input was changed to take place first.

Follow up Required/Motion:
Moved and seconded by Danny and Dave that the agenda be APPROVED, as circulated. CARRIED

4) Approval of Minutes from Previous Meeting

Minutes of the **14/02/2017** Meeting were approved as distributed.

Follow up Required/Motion:
Moved and seconded that the agenda be APPROVED, as circulated. CARRIED

5) Business Arising from Minutes

Follow-ups were reviewed from the previous notes – continue all of these to follow-up.

Item	Action	Updates
	Lake algae is across the board – what we can do, a lot more focus and program dollars going towards investigating this. One course in 4th semester that touches on algae identification. Would love to have a student identifying algae – about 5,000 bottles that we can't get through ID'ing. Trend going forward and a skillset we should be looking at. See what EM is doing around this and try to improve on this – opportunities to give samples to ID	No update

1

	Kris to connect Brad with professor	
	Monitoring is going through the roof – 5 years of monitoring is standard now. Preference for certain keys? Send these to Kris	No update
	Learning outcomes distributed - Kris to send this document to Lisa and other members not in attendance.	No update
Career Course	Career Coaching removed from curriculum? Recommended not removing it. What separates the students is how they present themselves at an interview. Andrea – technical skills – also looking at behavioural skills Not as heavy as it was at one point Career prep course – very generalized for first year Some have gone away from this, some have a specific one Issues and advances course: not following course outline – rehash – not relevant Resume writing across the board is not great Consulting is a missed opportunity for students Research companies and use the job posting for cover letters 2 pages is not the standard	

6) Student Feedback/Input

Third-year program presented on materials provided in the attached PowerPoint Presentation:

- Collections: identification is important – collections are not sustainable – look at changing to a variety of methodologies to collect specimens (e.g. databases, citizen)
- Research paper: statistical analysis course as a prerequisite
- GIS Project: more cohesion between lectures and labs (e.g. species mapping, etc.) – data pulled from GIS Analyst courses
- Biology and Environmental Studies professors and alumni consulted
- Testing
- Issues and advances courses: guest speakers that don't seem relevant to the program
- Staffing issues – Gender gap in program – 1/3 of students are female
- *Comment*: (Gina) Speaking as a consultant, it is important to bring back species to office for collections. She was allowed to take photos for collections. OBDN – need to get species under microscope.
- *Comment*: (Dave) Found the collection relevant later in his career.
- *Recommendation*: Rework the second collection.
- Volume issue: Large sections of students – over 206 students, running 5 sections.
- *Comment*: Chris Ellingwood don't want to destroy the natural habitat. Interesting to see gender gap issue. Shared that 80% of the applicants for positions were female.
- Not taught proper collection methods. Sensitive environments.
- *Recommendation*: Propagate species – land for plant propagation. Volunteer scientist outside of the classroom.
- Comment: In the industry, don't get where to find things until you've been out in the field. It sounds unnecessary, but when looking at developing an EA it is important.
- *Question*: Parts of the course weighted higher than others? *Answer*: It is not the case that if

2

students fail one test that they fail the course.

Second-year program students presented the attached paper:

- Stressful from the results of strike. Less time to destress during holidays and breaks.
- Positive:
  - Work in outdoors. Field work. Field work experience in the beginning of the third semester have helped for getting jobs.
  - Passion helps engagement
  - Extra learning opportunities offered through continuing education
  - Exchange field trip at St. Lawrence College
- Course material issues:
  - Course titles are not in alignment with course materials
  - Relevance of course materials – labs and lectures
  - Equipment issues
- The way that classes are taught:
  - Communication
  - Marking schemes and rubrics
  - Tests administration between sections
  - Speaking with teachers – feeling dismissed and belittled
- Recommended changes:
  - Species at risk and invasive species courses
  - Reptiles and amphibians
  - Insects
  - Field and lab aspect required in the career field
  - DNA analysis
- *Comments*: (Gina) ENA - still years away from this being relevant. DNA is taken. *Response*: 1 DNA extraction. A little sampling. Only go over 1 or 2 protocols.
- *Comments*: (Gina) Missing out on the reporting aspect. In the industry, it is easier to do a DNA Analysis.
- *Comments:* (Gina) Invasive species part of everything we do. Policy piece. Look at inviting PAC members to come into.
- *Comments:* Don't do reporting other than in Common First Semester. Getting additional things helped to get positions. Cover letter is the first thing the employer sees – if there is a spelling error that negatively impacts the decision of the employer.
- Takes time to do things on your own.
- *Comment*: (Dave C) Genetic sampling will become important.
- *Comment:* (Murray) Building DNA Sampler.
- *Question:* OWES? *Answer*: No, they don't get the certification.
- Opportunity to use Dr. Wilson's lab at Trent.

8) College Update: Dean's Report

Committee members were provided with a Dean's Report ahead of the meeting:

- Record enrolment in Fall 2018, International students increased
- Despite the Strike – significant numbers were still maintained
- Winter semester
- Growing international student group – significant growth concentrated in a few programs such as SAG

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and AWSOM

- GeoCentre funding and renovations – Randy took the members on a tour prior to the meeting
  - No longer on budget or on time
- New staff
  - Administration: Brett Goodwin, Rick Gray, Ron Macdonald
  - Faculty, Techs.
  - Expect more hiring next year
- Question: Earth Science enrolment?
- *Question*: Faculty to student ratio. *Answer*: The program with the most full-time faculty. Comparable with other institutions.
- *Question*: Is there a way for Alumni to connect with current students? *Answer:* Not a current system to track, but it could be an area of development. Marie brings in alumni for career speaker series. Lindsay Jackson mentioned that Algonquin does roundtable events.
- *Question*: (Brett) Interest in social media interaction? *Answer*: (Andrea) There are some options available (e.g. LinkedIn). (Dave) Great grads article is what brought him into the PAC meeting. (Murray) Listservs have been great and might be a way to share. (Marie) Skype is also an option.
- *Suggestion*: (Lindsay) Alumni mentorship opportunity.

6) Program Update: Coordinator's Report

Committee members were provided with a Coordinators Report ahead of the meeting:

- Optional co-op designation: partnering with the OMNRF
- Overview of the program curriculum
- Looking at adding an Indigenous Certification Course
- Co-op program: 70% average, November applications, not a huge uptake (could be due to the fees) – there are some dedicated positions with some PAC members
- Field school runs third semester from week 2 to 6: wildlife, wetlands, terrestrial habitats, freshwater ecology, fisheries camp
- OWES accreditation – looking to work on this with OMNRF
- *Question*: Scat surveys? *Answer*: Observations – not surveys.
- Question: Mussels? Answer: Lifecycles of mussels.
- Do a full ELC for fourth semester.
- Collection Courses – Plant and Forage fish (45/15 species)
- There is the an option to take photos – they have to take a certain photos of the fish for accurate identification
- Special concern species – made aware of these species
- *Question*: (Murray) Recommendations – when do you create the course content and make the change? *Answer*: Takes place in the spring. Currently it will not affect students in first year.
- Lack of instruction – second semester there needs to be a focus on training them to go out and complete the collection.
- *Question*: (Murray) Did the students receive no instruction? *Answer*: Wildlife Observations typically in Week 14 go over legislation, species at risk, etc. This year it's not happening. 72 page document and 2 hour instruction.
- *Comment*: (Brett) Ken Reid – no harvesting policies. Indicated as off-limits to students.
- Back-half courses overview.
- *Question*: Are you seeing more use of drones? *Answer*: High tech drones are being used in GIS department (Gina).

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- *Question*: Lectures lining up with the labs? *Answer*: We try to line up where we can. Lecture series is different from the lab series. *Recommendation*: Set that up up-front. Week one we go through the course outline.
- Fourth-semester course overview
  - Animal Disease and pathology – *Question*: Is the focus on Ontario? *Answer*: We look at a Canada-wide and global perspective.
- Proposed/upcoming changes:
  - More technical skills
- Program challenges:
  - High enrolment
  - Full-time staff – Tom Brooke hired; two staff left
- Admission requirements:
  - No science (biology or chemistry) course requirements
  - *Question*: How many come without these? *Answer*: Still need 70%, 60% have Biology Grade 11 at least, chaffing process. *Question*: Chaffing process? *Answer*: Little to do with academics – attrition is based on life or other factors. Preparedness issues.
  - *Question*: Who mandates targets? *Answer*: Enrolment Planning Management Committee.
  - *Recommendation*: need to come out with more chemistry. Employers spend a long time needing to train them for this. Do a pilot to look at the outcomes.
- *Comment*: (Chris) Species at risk is number one issue. Schedules, permits, etc.
- Welcome to Tom Brooke
- Direct entry students
- Post-graduate certificate: need for students coming out from university; Brian talked with Ron about possibilities
- International placement opportunities
- Vet tech exchange at St. Lawrence College – pathology, radiology of students, broaden horizons, very lab based
- Affiliation with Delta Water Fowl

7) Program Feedback and Questionnaire

Please complete the Google form or paper copy of the Program Questionnaire and submit online or at the end of the meeting.

8) Industry Input/Trends

Species at risk/invasive species:

- takes longer than you think it does – run a mock process
- OReg 242 (DFO perspective)
- Protocols online
- Process is as important as actually identifying
- *Question*: If you developed a course could it show up in fall semester? *Answer*: It is possible.
- *Question*: What drives the work? What is required to get Rec Certified
- *Question*: Who approves it? Answer: If it is the recommendation of the PAC, Ron would approve a workload for developing the module/course.

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- *Program Review* – Consult with an external partner – get together a focus group to look at focus group

Action: Send out course outlines with meeting minutes to PAC members.

- Wetland Compensation – Enhanced habitat

Dave Cobblestone, OMNRF Biodiversity Unit:
- work with agriculture, water quality
- Look at how Fish & Wildlife is incorporated into course

Gina MacVeigh, Natural Resource Solutions Inc.:
- Environmental Consultation Firms
- Mussel specialist – municipal infrastructure growing – big industry
- DFO – June course offered

Safety and Certifications:
- Chainsaw course – extra certification
- Small engines – fuel or ignition issue? Common sense not there
- WHMIS has to be done by employer
- Occupational Health and Safety Act – huge for George C.
- Tailgate meetings, PPE, Checklist
- Safety Protocols

Gerard Sullivan, York Region:
- Construction
- LIDs – as MOECC with development of policies
- Landscape level wildlife tracking – migration routes

Danny Bernard, Canadian Wildlife Service:
- Co-op pathway - university students can bridge to program through co-op

Action: Brett will send out a question regarding the use of species in the lab.

9) Next Meeting and Adjournment

Next meeting: March 21 2019

Official opening of GeoCentre – June 2018

Meeting adjourned at 3:34 pm.

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Fleming College
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Program Advisory Committee Meeting

Fish & Wildlife Technician/Technology

Advisory Council Attendees: *Matt Burley, Brett Tregunno, Gerard Sullivan, Murray Hall, Gary Pritchard, Lisa Jennings (by phone)*

Guest Attendees: *Linda Skilton, Kristine McBride, Mary Ann Fader, Anne Torwesten, Sylvia Cashmore, Brian Round, Students – Abby Brooks, Ken, Dylan and Lynzey Ruscutti*

Regrets: *David McLachlin, Jeff Anderson, Gina MacVeigh, David Copplestone, Bill Dowd, Brad McNevin*

Recorder: *Kyla Maude*

Agenda Topic	Follow-up Required / Motion
1. **Call to Order – Welcome** Murray Hall chaired and called the meeting to order at 9:05 am	None
2. **Approval of Agenda** Agenda was accepted as circulated.	Approved as circulated.
3. **Approval of Minutes from Previous Meeting** Minutes were approved as circulated.	Approved as circulated.
4. **Conflict of Interest Declaration** – None declared	
5. **College/Campus/School Updates** **Dean/Principal Report** - The Dean/Principal report was circulated prior to the meeting. - New hire – Kristine McBride, professor and coordinator of the Fish & Wildlife program - Excited about the completion of our recent Master Space Plan – lots of renovations to existing space and expanding outdoor learning space. Capital campaign will take place in the next few months. - Enrolment for Winter 2016 (Day 5) – 277 semester one students; there is a decline in enrolment for domestic students overall - Domestic student numbers are steady at Frost as we are offering many co-op programs which students are attracted to. We have also introduced many new graduate certificates which are also appealing to domestic students. (E.g. new graduate certificate program Health, Safety & Environmental Compliance – 16 fulltime students who started in January).	

Agenda Topic	Follow-up Required / Motion

- Provincial trends – every college is facing decline in domestic students and relying more heavily on international enrolment. Finding more mature students returning to school. International – growing slowly at Frost
- Fees are competitive with other colleges – tuition is regulated by Ministry of Training, Colleges and Universities (MTCU). We raise tuition on average 3% each year. Some high demand programs can increase by 5%.
- Marketing to Aboriginal communities – we are building up our relationships to deliver primarily contract training and continuing education. Last year, Fleming partnered with Anishinabek Educational Institute (AEI) to offer our Forestry program at their campus in Munsee-Delaware. We will be signing a 5-year agreement with AEI where we can begin to offer more SENRS programs with AEI. Looking for ways to continue grow our relationship with Indigenous communities. Possibility to partner with companies that work in the North.

6. **Program Review – Sylvia**
   - Every 5 years programs undergo Program Review – look at if programs are viable, are we preparing our graduates for entry level jobs etc. Sylvia acts an outside facilitator who works with the Chair, faculty and PAC members – will be looking at the KPI data, literature, and qualitative comments from industry etc.
   - Survey questions were circulated. Discussion of survey questions:

What are the strengths of our graduates that differentiate them from others?

- Better problem solving skills, more specific skills (e.g. fisheries identification), more adaptable to the field, technical certifications are important and great they are embedded in the program, adaptive, more independent graduates, field ready through a good introduction to field work. Good understanding of the basic protocols and well adapted to the environment (physical elements).
- Need more communication skills (dealing with community organizations, partners, landowners), grant writing skills. Updates of the federal and provincial acts (new invasive species act) – helpful when students are up to date with this. Stressing digital data collection skills (GPS, GIS, how good data needs to be collected to be useful).
- Trends – climate change, Low Impact Development (LID) skills, storm water management – students should be up to date on this
- Stressing communication. Finding more and more that young people are disconnecting from the importance of verbal communication skill sets, interview skills etc. Should be stressed in every semester.
- Communication – grant proposals, conveying a message to the public etc. Precise in what you write, get to the point. Writing abilities – think of the basics. Report writing – most sought after skill, along with meeting deadlines.

Are there any gaps in the program currently?

- Moving away from the career mapping course, will have more informal workshops (mock interview day)

Agenda Topic	Follow-up Required / Motion
- Proper cover letter writing is important – won't even get the interview if you can't write a good cover letter - Nothing lacking in F&W program curriculum, but the Ecosystem Management students convey their message better in an interview. Last two hires were Ecosystem Management grads – seemed more put together (even dress code etc.) - Going forward, best time for mock interview day would be in February	
7. **Industry Updates** Species at Risk Program - Are we providing skills to students that they will need to deal with these changes? - Students are missing some knowledge on species, habitat and plant protection. Important as more and more species get added to the list every year. This is embedded within the courses, not a specific course for this. Ornithology – two lectures dedicated to Species at Risk, first year Ecosystem Skills has some in it as well. - Lots of jobs available in this area – need to provide this skillset to our students. - Lots of funding from government for this type of work – encourage students to self-learn as well, to keep up with the various Acts.	
Gary - Working for a consulting firm that specializes in First Nation ecology projects - Trends in drinking water, need people to do backline baseline studies, surface water analysis, identifying critical species, traditional ecological knowledge with elders in the community - Sustainable energies and technologies for communities - For hiring, typically look at third year grads as they tend to be more rounded	Kyla to send out program proposal for Applied Planning program
Gerard - Protecting streams and wetlands during construction - Hire college grads if we can – high paying jobs ($100,000) in Environmental Monitoring (species at risk, water, wetlands etc.) – industry is starving for people for this position. - Secondary storm water management and treatment	
Brett - Conservation Authorities have been growing in the last 10 years and are predicted to continue - Base trends in water quality and quantity – F&W students don't sell this skill set as well as they could (typically hire ET and EM students) - Scope broadens with larger authorities – storm water management (LID), natural heritage systems planning (working closely with municipalities) – Linda mentioned that this trend inspired the College to create an Applied	

Agenda Topic	Follow-up Required / Motion

Planning graduate certificate program (1 year) – understanding planning and how it intersects with the environment – launch in Fall 2017 is likely. The program proposal for this concept will be circulated.
- Infrastructure – salt and chloride management – working with public works and municipalities
- Reporting – project updating through social media, project summaries to funding agencies, website updates, etc.
- Partnerships – most projects are done with partners and everyone is fighting for the same pool of money

Matt
- Wildlife crossing and protection techniques
- Funding aspect of applications – recreation fisheries through government funding – habitat and watersheds (Great Lakes)
- Bypass channels, groundwater protection and headwaters

Murray
- Backpack electrofishing – students will get class 2, but they don't touch on boat electrofishing
- Grads should be highly trained in electrofishing, would it be possible to introduce a boat electrofishing component? Something to consider.
- Would employers want this from students, or would they want to do their own training?
- Fish handling, ID and reporting – 50% of electrofishing.
- Seining is important too

8. **Program Related Activity**
Key Performance Indicator (KPI) data
- Only one other Fish & Wildlife program at another College (Sault College)
- 5 year data is important to look at
- 2014 – low percentages, an anomaly year because of small number of students
- Higher than College and system overall in most categories
- KPI data doesn't track students who attend College or University after diploma

Program Changes & Updates
Introducing 5 different field schools in semester 3
- Students will rotate all 5 camps (1 week at each camp). Front half of semester 3 is field school rotation
- New camps - Fisheries, Wildlife, Freshwater Ecology, Habitat and Wetland
- Committee really liked this new camp idea – good for students, will get a full range of skills.
- Each field school is P/F and students need to pass all 5 camps

Overview of Program Curriculum:

Agenda Topic	Follow-up Required / Motion
- Added additional GIS course - Mandated Indigenous studies course - Students love Fish camp, but missing out on regular classes – hard to keep up - Offering the 5 field school in 3rd semester – stay in a section and each week complete a field school - Sustainable Fisheries course – working on this - Law course was removed – will embed within courses, learning practically - May/June period will be designing curriculum - Working with real world data sets – more meaningful for students, looking to incorporate more of this – data gathering at the field schools and apply this in the back half of the semester - Rental of boats for electrofishing – could pursue this if the committee believes it's beneficial. Gary and Murray would be able to help in this area. ACTION: Brian to follow-up. - Gary suggested idea of "Meet the Industry" day/night – show off equipment, demos etc. - Program has a strong enrolment in two year program but a dip in our three year technology program (only 11 students this year) - talked about the creation of a post grad certificate geared towards University grads. This graduate certificate program would be designed differently than the current third year program with more intensive ID skills etc. The committee agreed that the University post-grad stream is a good idea – very beneficial for students and the school. If we designed the new program as a modular program we could bring in industry specialists for each module. - Is there a group or blog where students, industry etc. can connect and provide an opportunity for people to connect? Students have a program Facebook group that they use. - Handful of U.S. students, still expensive for these students to come here as they are paying international fees which are much higher. Optional Co-op: - Addition of optional co-op (May until end of August) – between second and third semester – students will compete for positions, take a co-op prep course in second semester. Only 30 co-op spots available to students - grades based and personal statement to determine top 30 students. - Co-op tax credit – 25-30% of wages back, advantageous to hire co-op over a summer student position - Committee agreed that co-op programs are great for employers and the students – happy to see this incorporated into the program - Mid-term and final evaluation for employers to complete – check boxes for the most part. Student completes a reflective piece. - Co-op positions always have to be paid positions.	Brian to follow-up with Gary and Murray re: boat electrofishing Kyla to send out Employer Manual to committee members – manual can be viewed here.

Agenda Topic	Follow-up Required / Motion
- Sherri Crump (sherri.crump@flemingcollege.ca) will be taking over from Anne Torwesten as Co-op Officer. Kyla to send out Employer Manual to committee members – manual can be viewed here. **Student Feedback** - Great program so far, going into Conservation & Environmental Law Enforcement program next year - Like the hands-on aspect of the program - Socializing skills – lacking in some students – a business aspect of the program would be helpful – how to sell and market yourself - Like the field school changes that will be happening - Testing – too lenient with re-tries, can be frustrating for students who work hard. - Some students are lacking communication skills – 3 communication courses throughout the program, but there is a lot missing from these courses - Faculty are amazing and always willing to help - Would like more on invasive species – this seems to be in every job posting 9. **New Business** **Equipment Needs** - Tight budgets at the College and we have a bottleneck with number of boats we have - Any ideas around equipment donations from committee members would be welcome - Murray offered equipment at cost - Gary suggested having an industry day where students go out or industry come in and provide the equipment needed for the day - Develop a business plan – programs can be sponsored and there is funding to collect data in a new way. ACTION: Gerard to send business proposal template to Kris McBride (kristine.mcbride@flemingcollege.ca) **Committee Membership** - NGO representative? - Gary to reach out to Jay Bernouse (DFO) - Linda suggested Craig Brunetti from Trent University 10. **Next Meeting Date** – February 10, 2017, 10:00 – 2:00 p.m. 11. The meeting was adjourned at 1:10 pm	Gerard to send business proposal template to Kris McBride (kristine.mcbride@flemingcollege.ca)

12.5. Appendix V: Competitors

COLLEGE	PROGRAM TITLE	LENGTH, TYPE (DIPLOMA, CERT., POST)	DELIVERY METHOD(S)	OTHER (UNIQUE TO THE PROGRAM)
Sault	Fish and Wildlife Conservation Technician	Diploma	Co-op	
Sault	Natural Environment Technician – conservation and Management	Diploma	Co-op	
Sault	Natural Environment Technologist – Conservation and Management	Advanced Diploma	Co-op	
Boreal	Techniques en Environement Forestier et Faunique	Diploma		
La Cite	Technologie en Environement Forestier -Faune	Diploma		
Boreal	Technologie de Gestion de la Peche et de al Faune	Advanced Diploma		

12.6. Appendix VI: Letters of Support

DR. CHRISTINA DAVY
Adjunct Professor, Trent University
Wildlife Research Scientist, Species at Risk, MNRF
Peterborough, Ontario, Canada, K9J 7B8
T: (647) 838-8946
E: christinadavy@ontario.ca

TRENT UNIVERSITY

February 19, 2019
Re: Conservation Biology Technician Ontario College Diploma at Fleming College

To whom it may concern,

I am writing to express my support for the proposed Conservation Biology Technician Ontario College Diploma under development at Fleming College. The existing programs available at Fleming provide students with a wide range of employable skills related to fish and wildlife management, ecosystem restoration, geospatial information management and environmental sciences generally. The proposed Conservation Biology program will complement the existing Diploma offerings by providing specialized training in the management and recovery of species at risk and their habitats.

Canada has a strong federal mandate to protect its biodiversity, and this mandate is also reflected in provincial legislations (although these vary among provinces). Ontario and other provinces rely on well-trained ecological professionals to conduct environmental assessments, recover species at risk, and help proponents develop successful infrastructure, energy and other projects that can drive our economy without threatening our biodiversity. Fleming's diverse programs are training these professionals, and the addition of the new Conservation Biology program will strengthen this training portfolio.

I am confident that this new program addresses a demonstrated interest from prospective students, provides meaningful training and employable skills, and will complement the related programs Fleming already offers. I am keeping this letter short – but please do not hesitate to contact me with any questions.

Best wishes,

Dr. Christina Davy

ROYAL ONTARIO MUSEUM

Attention:
Dean Brett Goodwin
School of Environmental and Natural Resource Sciences
Sir Sandford Fleming College
200 Albert St. S.
Lindsay, Ontario, K9V 5E6

Please accept this letter in support of the Conservation Biology Technician Program at the School of Environmental and Natural Resource Sciences, Sir Sandford Fleming College with a proposed start date of autumn 2020.

At the present time I am the Manager of the Schad Gallery of Biodiversity at the Royal Ontario Museum (ROM) and the Director of the Environmental Visual Communications partnership program with Fleming and the ROM. I have been with the ROM for 36 years with most of that time spent as an Ornithology Technician in the Department of Natural History. I have also worked closely with staff from a number of other organizations: Environment and Climate Change Canada, Ministry of Natural Resources and Forestry, Toronto Region and Conservation Authority, Bird Studies Canada and a number of other national and international environmental organizations.

In recent years, I have noticed the universities moving away from courses related to taxonomic identification and field techniques both of which I think are still valuable programs needed in the environmental community. When hiring summer students or passing along the names of suitable candidates to other agencies I am surprised how little, or poor, identification and field techniques are in candidates and I strongly believe there is still a valuable need for this knowledge. Although some of this research may have moved from government to not-for-profit organizations and consultants it is still a much needed service. In addition, the field and laboratory components have evolved rapidly in the last 20 years with advances in monitoring and related electronics, GIS and molecular techniques. It is a changing field and, while some of the material can be learned in the classroom it is also important for students to be working in the field alongside researchers or teachers familiar with the topic. I don't believe this sort of program can be easily taught on a part-time or on-line format and I believe an immersive full-time program will allow students a greater ability to mesh the information provided in the different courses effectively.

I was happy to be part of the Reference Group Meeting Discussion with faculty from Fleming as well as Burton Lim from the ROM and Christina Davies from the Ministry of Natural Resources and Forestry. We all brought different expertise to the discussion due

to our divergent areas of interest. Combined with the program development already in place from Fleming staff I am convinced this could be a very strong and valuable program both for government and non-government sectors. The Program has been well thought out and the courses will provide the student a thorough introduction to "on the ground" conservation biology. I especially like the addition of both a broad scale overview and discipline specific courses. An indigenous component, natural resources law and conservation management courses all make the program stronger and the students more aware.

I would be more than happy to continue to participate in the development of the program and further support the students through my own work or by developing a connection with the Environmental Visual Communications program.

Sincerely,

Mark Peck
Manager, Schad Gallery of Biodiversity
Royal Ontario Museum
100 Queen's Park
Toronto, ON Canada M5S 2C6

416 586 5523
markp@rom.on.ca

ROYAL ONTARIO MUSEUM

February 1, 2019

Dean Brett Goodwin
School of Environmental and Natural Resource Sciences
Sir Sandford Fleming College
200 Albert St. S.
Lindsay, Ontario
K9V 5E6

Dear Dean Goodwin,

Please accept this letter of support for the new Conservation Biology Technician program in the School of Environmental and Natural Resource Sciences at Sir Sandford Fleming College, which has a proposed start date of Fall 2020. I am an assistant curator of mammalogy at the Royal Ontario Museum with research interests in the biodiversity and evolution of mammals with a particular focus on bats.

I have been actively involved in and a big supporter of the Environmental Visual Communication program at Fleming, which is a collaborative initiative with the ROM. Since its start in 2012, I have mentored and advised EVC students and graduates each year on my research expeditions around the world including Guyana, Sri Lanka, Peru, and of course closer to home in Ontario.

This new Conservation Biology Technician program will focus on a broad level of learning skills that will be timely and relevant in conservation biology, especially with endangered species and habitats being under more threat. For example, in my area of expertise, 4 species of bats have recently be added to the species at risk list in Ontario and Canada due to white-nose syndrome, which has killed millions of bats in North America, and northern right whale populations are also getting precariously low due to a number of factors including increased ship traffic in the Gulf of St. Lawrence.

100 Queen's Park, Toronto, ON Canada M5S 2C6 T 416.586.8000 www.rom.on.ca AN AGENCY OF THE GOVERNMENT OF ONTARIO

The curriculum for this new program is very thorough, covering the latest technologies such as genetic analysis and geographic information systems, which will keep students on the cutting edge of industry needs. This knowledge base would be ideally suited for a technician position in the Department of Natural History at the ROM. In addition, the emphasis on both field and lab work fits in well with our mandate of exploring and discovering the natural world.

I am willing to help with any aspect of the program development and implementation, especially in areas of hands-on experience in research projects and fieldwork. Guest lectures on mammalogy are also possible, as are site visits to the ROM to study the biodiversity in both space and time. The museum contains a wealth of historical information that documents species diversity into the past, which also allows for extrapolation into the future. In addition, I am also able to review the general curricula of the Conservation Biology Technician program for validation and refinement.

To this end, I can support students directly as a mentor and providing field experience depending on courses offered. For example, I could lead a small mammal survey to show students how to monitor changes in species diversity and relative abundance. And I can function as a remote advisor if the distances from Peterborough/Lindsay to Toronto are logistically too time constraining.

In summary, I think the new Conservation Biology Technician program at Fleming will be valuable for training graduates in essential skills for biodiversity conservation that are also relevant to this emerging job market. I fully support this program and make myself available in any capacity to help teach the next generation of conservation biologists.

Sincerely,

Burton K. Lim, Ph.D.
Assistant Curator of Mammalogy
Department of Natural History
Royal Ontario Museum

100 Queen's Park, Toronto, ON Canada M5S 2C6 T 416.586.8000 www.rom.on.ca AN AGENCY OF THE GOVERNMENT OF ONTARIO

12.7. Appendix VII: Costing Summary

Sir Sandford Fleming College - Program Costing						
Program Name: Conservation Biology						
			Gross Tuition (per semester)			$ 2,751
			BOG (per yr)			$ 4,300
			Attrition			12%
			WFU per semester			0.79
(All values expressed in current dollars)						
	Year 1	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
	2019/20	**2020/21**	**2021/22**	**2022/23**	**2023/24**	**2024/25**
Semester 1 Enrolment	20	30	60	90	90	90
Semester 2 Enrolment	18	27	54	80	80	80
Semester 3 Enrolment	0	17	25	50	75	75
Semester 4 Enrolment	0	15	23	47	70	70
Total Enrolment	38	89	162	267	315	315
Revenues						
Tuition Fees	$ 104,538	$ 244,839	$ 445,662	$ 734,517	$ 866,565	$ 866,565
MTCU Operating Grant	129,086	302,333	550,314	906,999	1,070,055	1,070,055
Total	**233,624**	**547,172**	**995,976**	**1,641,516**	**1,936,620**	**1,936,620**
Expenses						
Academic Direct	141,022	285,541	383,929	594,040	705,764	705,764
Program Coordinator	23,058	23,058	23,058	23,058	23,058	23,058
Technician	22,407	52,479	95,524	157,438	185,742	185,742
Course Supplies	10,000	20,000	27,000	35,000	35,000	35,000
Tuition Set Aside	5,227	12,242	22,283	36,726	43,328	43,328
Dean & Other academic costs	13,550	31,736	57,767	95,208	112,324	112,324
Total	**$ 215,263**	**$ 425,057**	**$ 609,560**	**$ 941,470**	**$ 1,105,216**	**$1,105,216**
Net Contribution or (Cost) of Proposed New Program before Overheads	18,361	122,115	386,416	700,046	831,404	831,404
Contribution %	7.9%	22.3%	38.8%	42.6%	42.9%	42.9%
Equipment	101,291					
Development Costs	66,146					
College Overhead	82,352	192,878	351,082	578,634	682,659	682,659
Net Contribution or (Cost) of Proposed New Program	**($231,428)**	**($70,763)**	**$35,334**	**$121,412**	**$148,746**	**$148,746**
Cumulative Cash Flow Excluding Overhead	**($149,076)**	**($26,960)**	**$359,455**	**$1,059,502**	**$1,890,906**	**$2,722,311**
Assumptions:						
1. Dean and other academic administrative expenses allocated at 5.8% of revenue						
2. Academic delivery costs are calculated based on 47% contract.						
3. College overhead is allocated at 35.25% of revenue						

12.8. Appendix VIII: MTCU Program Delivery Information (PDI)

	Semester					
Funded Instructional Setting	1	2	3	4	5	6
Classroom instruction	135	180	100	135		
Laboratory/workshop/fieldwork	195	165	205	150		
Independent (self-paced)	15		11			
One-on-one instruction						
Clinical placement						
Field placement/work placement				60		
Small group tutorial						
Total	345	345	316	345		
Non Funded Instructional Settings	1	2	3	4	5	6
Co-op work placement - Mandatory						
Co-op work placement - Optional						
Degree work placement – Mandatory (shorter than Co-op)						
Total	0	0	0	0		

Total	1	2	3	4	5	6
Grand Total	345	345	316	345		

SUBMISSION TO THE BOARD OF GOVERNORS

Agenda Item xx

Report Title: New Program: Mechatronics
Report to: Public Board Meeting **Meeting Date: May 22, 2019**
Requested Action: Decision / Approval
Prepared and Submitted by: Jason Jackson, Dean School of Trades and Technology

OVERVIEW / BACKGROUND

The School of Trades and Technology proposes to launch an Ontario College Graduate Certificate in Mechatronics commencing in September 2019.

On October 24, 2018, the Mechatronics preliminary program proposal was presented to the Board of Governors. The program proposal was supported by the Board of Governors and the attached business case document was developed for review and approval.

Fleming's Mechatronics program will provide prospective students the ability to train in less time to work in the highly specialized field of mechatronics. Currently, there are only two Ontario College Graduate Certificates related to the field of mechatronics offered in Ontario. There are no Ontario College Graduate Certificates solely focused on the field of mechatronics. Thus, Fleming's Mechatronics program will fill a gap in Ontario at this credential level providing students with a fast track to employment in this field.

To work in the mechatronics field, engineering graduates need to have advanced applied skills and knowledge in electrical, mechanical and computer engineering as well as automation and manufacturing. Moreover, graduates need to know how to work on interdisciplinary projects and combine the principles of these different engineering fields. Current two to three year engineering diploma programs do not prepare students sufficiently in the rapidly growing mechatronics industry. Thus, the Mechatronics Ontario College Graduate Certificate program will bridge this gap in training and produce skilled graduates who will have the essential skills to work in the mechatronics industry as a Mechatronics Specialist or Technologist.

Program Description:
The Mechatronics Ontario College Graduate Certificate offered by the School of Trades and Technology is a three semester face-to-face interdisciplinary engineering program that focuses on advanced manufacturing, industrial automation, electronics engineering and computer programming. The program will include two applied project courses, applied research opportunities, and Agile and LEAN Project Management training.

Applied learning and skill development including applied research is the key focus of the Mechatronics program. The program curriculum includes two applied project courses, several lab courses that will use new, state-of-the-art equipment, and Agile and LEAN Project Management training. Applied research concepts and related skills are embedded in the curriculum and there will be opportunities for students to directly participate in applied research projects with industry partners.

Labour Market Demands:
Technology and automation are creating demand for workers with a complex mix of skills, including technical, cognitive, interpersonal, digital and problem solving (ICP, 2017). According to Merkur (2018), the evolution and integration of automation and robotics is the top new trend in engineering. Robotics technology and automation will evolve at a very rapid pace. In particular, the development of connected and autonomous vehicles and compact six axes industrial robots, will result in an

increase in the development of manufacturing sector robots thereby increasing the labour market for professionals that design, implement and maintain these technologies.

Labour market data shows a nationally projected increase in market growth of 20.6% for mechatronics occupations that require the combined level of applied skills and knowledge in high-level process manufacturing, automation and robotics.

The Mechatronics program is a highly specialized, interdisciplinary engineering program designed to give our graduates this complex mix of skills to meet these present and future labour demands in the Industry 4.0 era.

Student Benefits:
The Mechatronics program will appeal to our international and domestic student markets. Enrollment data has shown an increase in international student enrollment in this level of credential offered by the School of Trades and Technology. Thus, increased choice within this area of programming will appeal to prospective students considering Fleming College. The program will also create a pathway for our Electrical Engineering Technician and Instrumentation and Control Engineering Technician Ontario College Diploma graduates, thereby giving more choice to our domestic students to continue their studies at Fleming College to increase their employment opportunities. The program will also offer enhanced applied learning and applied research opportunities sought after by both our domestic and international student markets providing real world and hands on training. In addition, the program will offer two intakes per year (one in the fall and one in the spring) giving students increased choice over their educational journey.

Students in this program will also benefit from the applied learning opportunities embedded in the program design. The program will include two applied project courses, and opportunities for students to participate in applied research. Students will thus be able to network and complete real-life projects during their studies.

The Mechatronics Ontario Graduate Certificate will also be a program pathway option for our own Electrical Engineering Technician and Instrumentation and Control Engineering Technician Ontario College Diploma graduates, as well as, international and university engineering degree graduates who wish to obtain more applied training in the field of mechatronics.

The program will pursue opportunities for graduates (who do not already possess degrees) to ladder into Mechatronics Engineering or Electrical Engineering university degree programs. For example, the program will reach out to the University of Ontario Institute of Technology (UOIT) to negotiate possible articulations.

Another noteworthy potential pathway the program will pursue is to create a partnership with Siemens in delivering the Siemens Mechatronic Systems Certification Program (SMSCP). This is an internationally renowned certificate in the industry. This certificate would be offered through our Continuing Education department and be available to industry professionals, as well as, program graduates. Fleming College will benefit from this partnership in that:

- no institution on the east side of the GTA delivers the SMSCP certification program
- Siemens Canada is a well-known community partner in Peterborough and this program can provide training services to these Siemens employees

Students will also complete Electromechanical training units provided by FESTO. FESTO is a worldwide leader in automation as well as a world market leader in technical training and development related to digitalization in pneumatics.

In addition to providing the students a unique advantage related to employability, these certification opportunities also support our local demands from the Kawartha Manufacturers Association, and the Northumberland Manufactures Association.

Alignment to Strategic Mandate Agreement:
Lastly, the program aligns with the first domain, Program Enrichment and Growth, of the 2017-20 Strategic Mandate Agreement (SMA) by broadening Fleming's Trades and Technology program offerings thereby building on the quality of our technology core programs that support regional economic and social health. The program will also grow our international activities by increasing international student enrolment and giving our international students more program choice in the area in which they desire training and potentially support local community growth.

Resources:
The vision of the School of Trades and Technology is to provide unique, engaging and integrated program and course delivery options which supports the learning of many students through the offering of full-time programming, Continuing Education (CE) and Contract Training (CT).

The proposed Mechatronics Program capital investment places Fleming College in a position to integrate both Trades and Technology programs. While the investment is a high capital cost, this equipment will be used with other programs:

- Electrical Apprenticeship
- Mechanical Programs
- Computer Engineering
- Welding Fabrication
- AI/VR
- Computer Security Investigations
- Contract and Continuing Education
- Makerspace
- Corporate tours and events
- Supports our community local program initiatives including STEM and First Robotics Clubs that Fleming College School of Trades and Technology sponsors.
- Industry research
- Skills Advance funding

Through the Apprenticeship Enhancement Fund (AEF) Fleming College has already purchased over $1 million in equipment from the same vendor to support the Electrical programming. The existing and new equipment have the potential to work together as "super" units. Currently, equipment is split between the Engineering Commons and the top level of the KUBE (The capital equipment is supplied by Festo Didatic and the technical term for the equipment is Electromechanical Training Systems).

There is also opportunity to use the equipment in new area with the Skills Advance initiatives.
All of this equipment together, along with an additional $100,000 of AEF funds this year, will total almost $2mill in electromechanical equipment that Fleming will have acquired. This equipment sets Fleming apart from other training institutions now as we will have the most up to date equipment related to industry standards, with the right space we could showcase this as a start of the art training facility.

There is also considerable potential for revenue generation through CE and CT with the sharing of this equipment and associated curriculum to respond to community and industry needs. We envision building a suite of workshops and sessions that could be offered year round.

Apprenticeship students may contribute to the reputational aspect of this as they cycle through their programs and then return to their employers, they may inform them about the equipment and through word of mouth in the electrical industry, we can anticipate inquires related to more and on-going CE/CT.

ANALYSIS / PROPOSED OPTIONS

The scope of analysis will depend on the nature of the issue but may include Legal Impact; Financial/HR Implications; Student Impact; Stakeholder Implications. Pros and Cons for each option should be identified as appropriate.

Student, program, and financial information is provided in the Business Case: Mechatronics document

RISK CATEGORY

Select all that apply *(to check a box, double click; from drop-down menu, select "checked" under Default Value)*

☐ External Environment ☐ Internal Environment ☒ Financial ☒ Human Resources
☐ Information Technology ☐ Legal ☐ Operational ☒ Strategic ☐ N/A

The main financial risks include unexpected international student enrollment declines, domestic student recruitment challenges and/or shortfalls, lack of industry support (i.e. lack of applied projects and applied research opportunities related to the mechatronics industry), and the inability to purchase the required equipment listed in Section 7.3. The delay or inability to offer the program due to lack of equipment, would also have serious reputational risks.

Investment in the automation and pneumatic trainers, and Festo MPS 203s equipment is a financial risk if the college is unable to attract and to continue to attract students to this program. Potential operational risks related to this equipment include requiring space, delivery, set-up labour and construction costs for room modifications to house the equipment. Over time, the equipment will also require maintenance, calibration and possible replacement.

The automation and pneumatic trainers, Festo MPS 203s equipment and 3-D printers will require considerable IT resources to set-up and install. A lead time of 1-2 months has been identified for implementation. Costs of this implementation is not fully known at present because set-up requirements have not been assessed.

Countermeasures related to enrollment include recruiting from a greater number of geographic markets will help to offset the risk of losing access to any one international market. In order to improve the rate at which domestic students enter our Ontario Graduate Certificate programs, we need to better align our international and domestic recruitment processes and create a system wherein we can reserve a certain percentage of program seats for domestic applicants.

There are no countermeasures available for the inability to purchase and set-up the aforementioned program equipment. If this scenario occurs, the program will be delayed or cancelled thus affecting institutional reputation.

In order to mitigate the financial risk of this equipment investment, the equipment will be shared with many other School of Trades and Technology programs and the Maker Space. There may also be opportunities for additional funding through applied research using this state-of-the-art equipment in collaboration with our business and industry partners.

RECOMMENDATION AND/OR MOTION *(i.e. Receive the update on Winter Enrolment for information. Refer the matter to Committee for further investigation. Approve the proposed xyz program of instruction.)*

It is recommended the Board of Governors of Sir Sandford Fleming College:

Approve the Mechatronics Ontario College Graduate Certificate program with an implementation date of September 2019, for submission to the Ministry of Training, Colleges and Universities for funding approval.

SUPPORTING DOCUMENTATION

Business Case: Mechatronics

BUSINESS CASE

Mechatronics

Date:	May 14, 2019		
Board of Governors:	☐ Feedback	☒ Decision	
Proposed By	Jason Jackson, Dean		
School of Study:	School of Trades and Technology		
Proposed Launch Date:	Fall 2019		
Offering:	☒ Full-Time	☐ Part-Time	
Student Enrolment Target:	YEAR 1 = 38	YEAR 3 = 110	YEAR 5 = 122
New Faculty Resources	1 Full time hire		
Semesters / Hours:	3 Semesters / 945 Hours		
Applied Learning Method(s):	☒ Applied Project	☐ Co-op/Placement	☐ Other
First Graduating Class	Class of 2020		
Credential Ontario College (OC):	☐ OC Diploma ☐ OC Advanced Diploma ☐ Fleming College Diploma	☐ OC Certificate ☒ OC Graduate Certificate ☐ Fleming College Certificate	
Program Mapping:	Appendix I		
Career Opportunities:	Mechatronics Technologist, Automation Technologist, Control Engineering Technologist, Electronics Engineering Technologist, Advanced Manufacturing Technologist, Mechanical Engineering Development Technologist, Nuclear Engineering Technologist, Process Control Equipment Technologist, and Robotics Systems Technologist		
NOC code(s):	NOC 2241, NOC 2243, NOC 2232, NOC 2174		
CIP code(s):	CIP 14.42: Mechatronics, robotics, and automation engineering		
Proposed Tuition (per Semester):	$2,100		
Program Start-up Cost:	($882,018)		
Program Operating Cost:	YEAR 1 = $189,427	YEAR 3 = $363,152	YEAR 5 = $384,836
Return on Investment:	YEAR 1 = ($811,457)	YEAR 3 = ($517,811)	YEAR 5 = ($2,174)
OCQAS Program Validation	☐ Pending	☒ Approved	APS Number: FLEM01303
MTCU code(s):	61021 (mapped to Ontario College Advanced College Diploma)		

Endorsed:

☐ Aboriginal Education Council
☒ Academic Council
☐ Deans Council
☐ Deans and Chair Committee
☒ Executive Leaders
☒ Program Advisory Committee
☒ Strategic Enrolment Management
☐ Other: _____

Acknowledgements

Thank you to the members of our Mechatronics Academic Development Team for their dedication and excellent work in engaging the college community in consultations, research, writing, and responding to feedback. Over the course of our planning and approval process this team involved Maxine Mann, Linda Poirier, Jason Jackson, Fereydoon Diba, Patti-Lynn Davis, Kris McBride, Jodie Black and Shannon Hayes.

Table of Contents

1. Executive Summary

The Mechatronics Ontario College Graduate Certificate is a three semester face-to-face interdisciplinary engineering program that focuses on advanced manufacturing, industrial automation, electronics engineering and computer programming. Labour market data shows a nationally projected increase in market growth of 20.6% for mechatronics occupations that require this combined level of applied skills and knowledge in high-level process manufacturing, automation and robotics.

Applied learning and skill development including applied research is the key focus of the Mechatronics program. The program curriculum includes two applied project courses, several lab courses that will use new, state-of-the-art equipment, and Agile and LEAN Project Management training. Applied research concepts and related skills are embedded in the curriculum and there will be opportunities for students to directly participate in applied research projects with industry partners.

The Mechatronics program will appeal to our international and domestic student markets. Enrollment data has shown an increase in international student enrollment in this level of credential offered by the School of Trades and Technology. Thus, increased choice within this area of programming will appeal to prospective students considering Fleming College. The program will also create a pathway for our Electrical Engineering Technician and Instrumentation and Control Engineering Technician Ontario College Diploma graduates, thereby giving more choice to our domestic students to continue their studies at Fleming College to increase their employment opportunities. The program will also offer enhanced applied learning and applied research opportunities sought after by both our domestic and international student markets. In addition, the program will offer two intakes per year (one in the fall and one in the spring) giving students increased choice over their educational journey.

Lastly, there are presently only two graduate certificate level programs offered in Ontario related to this interdisciplinary engineering field of study. Fleming College's Mechatronics Ontario Graduate Certificate will be the first graduate certificate in Ontario that is wholly representative of this interdisciplinary field. The Mechatronics program offering will also give prospective students with engineering degrees or diplomas in related fields the ability to enter the field of mechatronics more quickly than is currently available. Thus, this is an opportunity for Fleming College to offer a new fast track for a sought after credential in this field of study.

2. Program Description

The Mechatronics Ontario College Graduate Certificate offered by the School of Trades and Technology is a three semester face-to-face interdisciplinary engineering program that focuses on advanced manufacturing, industrial automation, electronics engineering and computer

programming. The program will include two Applied Project courses, applied research opportunities, and Agile and LEAN Project Management training.

2.1. Program Mapping

Vocational Learning Outcomes

The graduate has reliably demonstrated the ability to:

1. design, fabricate and analyze advanced electronic circuits in accordance with industrial standards, and specifications
2. analyze, interpret, and produce electronic and mechanical drawings and other related technical documents for Mechatronics design in compliance with industrial standards
3. design and fabricate mechanical components and systems by applying engineering principles and practices
4. design, analyze, build, select, integrate, and troubleshoot a variety of industrial controllers, sensors, data acquisition devices and systems, digital circuits, automated system and microprocessor-based controllers
5. establish and maintain inventory, records, and documentation systems to meet organizational and industry standards and requirements
6. select and purchase Mechatronic equipment and components that fulfill job requirements and functional specifications
7. integrate fluid mechanics fundamentals and fluid power systems to design and fabricate Mechatronics systems
8. manage project management processes to ensure proper planning and execution of Mechatronic projects
9. develop, integrate, improve and troubleshoot software codes and configuration for designing user interfaces to work with industrial controllers and microprocessors
10. develop embedded control programs for microcontrollers and PLCs to support Mechatronics applications
11. design and develop object orientated programs to integrate with Mechatronics applications
12. identify and utilize manufacturing processes, rapid prototyping methods, and advanced manufacturing technologies to optimize the product development processes
13. identify and utilize fundamentals of advanced technologies and methods such as machine learning, artificial intelligence and data analysis to create Mechatronic solutions.

The following table is an overview of the program curriculum (lec = lecture, lab = laboratory). For detailed program mapping, please see the approved CVS application in Appendix I.

Mechatronics Ontario College Graduate Certificate mapped to MTCU code 61021 (Electromechanical Engineering Technology)				
Semester	Course Code	Course Name	Hours	Delivery
1	NEW 1	Agile and LEAN Project Management	45	1-1 hr lec, 1-2 hr lab
1	NEW 2	Mechatronics 1	60	1-2 lec, 1-2 hr lab
1	NEW 3	Computer Programming	45	1-3 hr lab
1	NEW 10	Machine Design for Robotics	45	1-3 hr lec
1	NEW 5	CAD and Rapid Prototyping	60	1-4 hr lab
1	MATH 98	Math for Technology 3	45	1-3 hr lec
				Total Semester 1 Hours: 300
2	NEW 6	Applied Project 1	120	WIL
2	NEW 7	Mechatronics 2	60	1-2 hr lec, 1-2 hr lab
2	NEW 8	Industrial Control Systems	45	1-1 hr lec, 1-2 hr lab
2	NEW 9	SCADA/HMI	60	1-2 hr lec, 1-2 hr lab
2	NEW 4	Electro Pneumatic	45	1-1 hr lec, 1-2 hr lab
				Total Semester 2 Hours: 330
3	NEW 11	Applied Project 2	120	WIL
3	NEW 12	Mechatronics 3	60	1-2 hr lec, 1-2 hr lab
3	NEW 13	Intro to Machine Learning, AI and IOT	45	1-1 hr lec, 1-2 hr lab
3	NEW 14	Advanced Manufacturing Processes	45	1-3 hr lec
3	NEW 15	Industrial Networking	45	1-1 hr lec, 1-2 hr lab
				Total Semester 3 Hours: 315
				Total Program Hours: 945

2.2. Essential Employability Skills

According to the Framework for Programs of Instruction Minister's Binding Policy Directive, Essential Employability Skills are locally determined at the Ontario College Graduate Certificate and thus are not required in the CVS application at this level of credential.

3. Fleming Student Fundamentals

3.1. The Ideal Student

In order to be successful in this program, students will need to possess a keen interest in robotics, computer programming, and mechanical engineering. Students will also need to be good communicators, problem solvers, and critical thinkers because mechatronics is interdisciplinary and graduates who work in this field often have to bridge the gap between different engineering specialists. Lastly, students will need to have strong mathematical and analytical skills to be successful in this program.

3.2. Admission Requirements

Completion of an Ontario College Diploma, Ontario College Advanced Diploma, Degree, or equivalent in Electrical Engineering, Computer Engineering or Mechanical Engineering or related. Successful completion of a Differential and Integral Calculus with a minimum grade of 70% or equivalent is highly recommended.

3.3. Applied Learning Opportunities

The program will have two applied project courses in the second and third semesters. Students will take prerequisite courses in first semester to help guide them towards completion of a successful, superior applied project by graduation. These applied projects will allow students to interact with industry partners thereby building their collaboration and communication skills. The program will also include opportunities for students to contribute to applied research. Applied research is embedded in this program in the following ways: students will have opportunities to work with industry partners on applied research, researchers will serve as guest speakers in the classroom, and the curriculum will include examples of applied research projects.

3.4. Student Target Audience and Student Demand for Program

In the 21st century, the rapid expansion of the internet, the emergence of advance manufacturing processes and the advancements in computer and electronics engineering have led to new possibilities in engineering applications which require the contributions of three main engineering streams: mechanical, electrical/electronics and computer engineering.

To work in the mechatronics field, engineering graduates need to have advanced applied skills and knowledge in electrical, mechanical and computer engineering. Moreover, graduates need to know how to work on interdisciplinary projects and combine the principles of these different engineering fields. Current two to three year engineering diploma programs do not prepare students sufficiently in the rapidly growing mechatronics industry. Thus, the Mechatronics Ontario College Graduate Certificate program will bridge this gap in training and produce skilled graduates who

will have the essential skills to work in the mechatronics industry as a Mechatronics Specialist or Technologist.

In addition to providing training opportunities for domestically trained engineers and engineering technicians, this graduate certificate will also appeal to our internationally trained student market. Analysis of Fleming enrollment data has shown that International students overwhelmingly apply to graduate certificates in programs related to Technology. This program will give internationally trained engineering technicians or engineers more options to train and pursue employment within the field of mechatronics.

3.5. Student Benefits

Fleming College's Trades and Technology School has a strong reputation for superior applied project work and successful placement of students in advanced projects. The Mechatronics program will build on this reputation by offering more project work in this relatively new field of study. Graduates will benefit from the technical and soft skills they will gain in completing these applied projects making them highly competitive in the labour market.

In addition to these applied learning opportunities, the Mechatronics Ontario College Graduate Certificate will create a shorter pathway for mechanical, electrical and computer engineering degree and technician/technology diploma graduates to enter the mechatronics field. In one year, these graduates can gain the skills and knowledge necessary to work in this field rather than completing an additional diploma program or university degree in mechatronics that would typically take two additional years to complete.

3.6. The Student Experience

Students who choose this program will benefit from the new Kawartha Trades and Technology Centre with its state-of-the art, sustainable shop facilities, smart-wired classrooms, and labs with the newest technology. The School of Trades and Technology also employs experienced industry professionals at the top of their field who will provide students with hands-on, application-oriented learning using current, standard industry equipment.

Students will learn through a variety of methods including: lectures and labs, analysis of best practices, simulations, guest speakers, field trips, and an applied industry project. During the applied industry project in semesters two and three (Applied Project 1 and 2 courses), students will work on real-life mechatronics problems for diverse businesses and organizations. This experience will demonstrate to others that our graduates can develop innovative solutions to today's real-world business

and organization problems. Graduates will be well equipped with the theoretical and practical applied skills necessary to pursue careers as mechatronic professionals.

3.7. Education Pathway Opportunities

The Mechatronics Ontario Graduate Certificate will be a program pathway option for our own Electrical Engineering Technician and Instrumentation and Control Engineering Technician Ontario College Diploma graduates, as well as, international and university engineering degree graduates who wish to obtain more applied training in the field of mechatronics.

The program will pursue opportunities for graduates (who do not already possess degrees) to ladder into Mechatronics Engineering or Electrical Engineering university degree programs. For example, the program will reach out to the University of Ontario Institute of Technology (UOIT) to negotiate possible articulations.

Another noteworthy potential pathway the program will pursue is to create a partnership with Siemens in delivering the Siemens Mechatronic Systems Certification Program (SMSCP). This is an internationally renowned certificate in the industry. This certificate would be offered through our Continuing Education department and be available to industry professionals, as well as, program graduates. Fleming College will benefit from this partnership in that:

- no institution on the east side of the GTA delivers the SMSCP certification program
- Siemens Canada is a well-known community partner in Peterborough and this program can provide training services to these Siemens employees as well.

3.8. Value Proposition

Fleming's Mechatronics program will give prospective students the ability to train in less time to work in the highly specialized field of mechatronics. Currently, there are only two Ontario College Graduate Certificates related to the field of mechatronics offered in Ontario. There are no Ontario College Graduate Certificates solely focused on the field of mechatronics. Thus, Fleming's Mechatronics program will fill a gap in Ontario at this credential level providing students with a fast track to employment in this field.

Students in this program will also benefit from the applied learning opportunities embedded in the program design. The program will include two applied project courses, and opportunities for students to participate in applied research. Students will thus be able to network and complete real-life projects during their studies.

4. Strategic Alignment

4.1. Strategic Mandate Agreement

The program aligns with the first domain, Program Enrichment and Growth, of the 2017-20 Strategic Mandate Agreement (SMA) by broadening Fleming's Trades and Technology program offerings thereby building on the quality of our technology core programs that support regional economic and social health. The program will also grow our international activities by increasing international student enrolment and giving our international students more program choice in the area in which they desire training.

In addition, the program aligns with the second domain of the 2017-20 SMA, Student Success First, by building new partnerships (pursuing a partnership with Siemens in delivering the Siemens Mechatronic Systems Certification Program) and deepening industry relationships to create new opportunities for experiential learning (two applied project courses and applied research opportunities) and employment for our graduates.

4.2. Fleming College Strategic Plan

Fleming College is currently in the process of developing a new Strategic Plan. The new priorities identified are as follows: New Programming, Quality, Preferred Graduates, Superior Student Experience, Invest in People and Embedded in the Community. This program aligns with all of these priorities.

This program will expand the School of Trades and Technology's graduate certificate offerings into a new engineering field that aligns with the priority of creating New Programming. Secondly, this program will align with our Quality priority by employing top industry experts to develop and deliver current, quality curriculum, as well as, offer an applied project and applied research opportunities for students through partnerships with industry thus ensuring alignment with current industry activities. The Mechatronics program will also pursue a partnership with Siemens in delivering the internationally industry renowned Siemens Mechatronic Systems Certification Program (SMSCP). This certificate would be offered through our Continuing Education Department and would be available to industry professionals, as well as, program graduates.

This program will produce Preferred Graduates by providing Mechatronics training that is not presently available at this credential level in Ontario. The training will be specific, applied, hands-on and meet the current and future needs of employers in this field. Next, this program aligns with the priority of Superior Student Experience. Students in this program will benefit from the applied learning opportunities

embedded in the program design, such as the two applied project courses, and opportunities for students to participate in mechatronics applied research. This will allow students the ability to work with industry partners and gain valuable experience in working with teams on mechatronics projects. The program also provides prospective diploma and degree graduates in other fields of engineering with a faster pathway to employment in the field of mechatronics. The School of Trades and Technology will also Invest in People by hiring one new full time faculty to deliver the program curriculum and by fostering partnerships with industry professionals and organizations.

Lastly, the program will be Embedded in the Community. The Mechatronics program will pursue a partnership with Siemens in delivering the Siemens Mechatronic Systems Certification Program (SMSCP) through Continuing Education. This is an internationally renowned certificate in the industry and would be offered to professionals in the community, as well as, students in the program. In addition, the program will also include applied projects and applied research opportunities in the mechatronics field in partnership with community business and manufacturing partners.

4.3. Fleming College Business Plan

The program aligns with two of the Business Plan Priorities of 2018-2019. First, the program will enhance the international student experience by giving these students more options in pursuing an Ontario College Graduate Certificate level credential within the School of Trades and Technology. Secondly, the program will engage with local communities as well as beyond in curriculum delivery and applied learning opportunities.

4.4. Fleming College Academic Plan

The program aligns strongly with two academic priorities. First, with the Pathways priority of the Academic Plan, by giving our students opportunities to move between Fleming programs and between institutions. The program offers pathway options for graduates of the Electrical Engineering Technician, and the Instrumentation and Control Engineering Technician Ontario College Diplomas within the School of Trades and Technology. The program will also pursue laddering opportunities with universities offering engineering programs, such as UOIT. Secondly, the program aligns with the Student Success priority by developing and implementing programs to effectively attract, support and integrate international students.

4.5. Fleming College Sustainability Plan

The Mechatronics program curriculum includes an applied project and opportunities for participation in applied research. Mechatronics applied projects and applied

research often involve sustainable design and solutions, in fact, the curriculum includes an Agile and LEAN Project Management course that teaches waste reduction in project planning, design and management. The curriculum thus aligns with the third category, Green Curriculum, goal 3.6 of 2019-2022 Sustainability Plan "Launch new programs supporting sustainability, low carbon building and the circular economy". The program supports this goal by providing training in sustainable practices in mechatronics design and solutions through hands-on applied project experiences.

4.6. Fleming College Internationalization Plan

The program will appeal to international students as enrolment data has shown they are overwhelmingly choosing Ontario College Graduate Certificate level offerings in the School of Trades and Technology. However, it is important to note that presently the Internationalization Plan is under revision. Once this new plan is in place, the new program will align with the plan in terms of additional opportunities for international students.

5. Environmental Scan

5.1. Labour Market

Currently, the labour market still requires humans for complex thinking/problem solving, contextualized analysis, programming, machine operation/programming, tasks involving dexterity, communication (flexible, empathetic), and personal/business services requiring "human touch" (Grant, 2016). The labour market is also experiencing a sharp increase in demand for "business" skills (critical thinking, interpersonal communication, self-management, ability to learn) (ICTC, 2015). Lastly, the top ten skills in our region were identified to be oral and written communication, detail orientated, team player, work independently, clean criminal record, problem solving, integrity, organizational skills and marketing. The program will focus on soft skill training in these courses: Agile and LEAN Project Management, Applied Project 1 and Applied Project 2. These courses will train students in communication, organizational, interpersonal skills and teamwork in particular. Other courses in the curriculum will focus on problem solving, detailed orientated skills and many of the other "business skills".

The mechatronics field is an interdisciplinary engineering field and falls under several NOC codes (Job Bank):

- 2241 – Electrical and electronics engineering technologists and technicians
- 2243 – Industrial instrument technicians and mechanics

- 2232 – Mechanical engineering technologists and technicians
- 2174 – Computer programmers and interactive media developers

Those working in this field under these four NOC codes, perform some or all of the following duties:

- Set up and operate specialized and standard test equipment to diagnose, test and analyze the performance of electromechanical, electronic and mechanical components, assemblies and systems
- Write specifications, schedules, and technical reports and control schedules and budgets.
- Assist in the design, development and testing of electrical and electronic components, equipment, and systems
- Assist in inspection, testing, adjusting and evaluation of incoming electro-mechanical, electronic and mechanical components and assemblies to ensure conformance with product specifications and tolerances
- Install, operate and maintain electromechanical, electronic and mechanical equipment and systems
- Repair and adjust system components, such as sensors, transmitters and programmable logic controllers, or remove and replace defective parts
- Calibrate components and instruments according to manufacturers' specifications
- Install control and measurement instruments on existing and new plant equipment and processes
- Prepare and interpret conventional and computer-assisted design (CAD) engineering designs, drawings, and specifications
- Prepare cost and material estimates, project schedules and reports
- Inspect mechanical installations and construction
- Prepare contract and tender documents
- Write, modify, integrate and test software code
- Maintain existing computer programs by making modifications as required
- Identify and communicate technical problems, processes and solutions
- Assist in the collection and documentation of user requirements
- Write, modify, integrate and test software code for e-commerce, Internet and mobile applications
- Assist in the collection and documentation of user requirements
- Supervise, monitor and inspect mechanical installations and construction projects

Common entry-level job titles include:

- Mechatronics Technologist

- Automation Technologist
- Control Engineering Technologist
- Electronics Engineering Technologist
- Advanced Manufacturing Technologist
- Mechanical Engineering Development Technologist
- Nuclear Engineering Technologist
- Process Control Equipment Technologist
- Robotics Systems Technologist

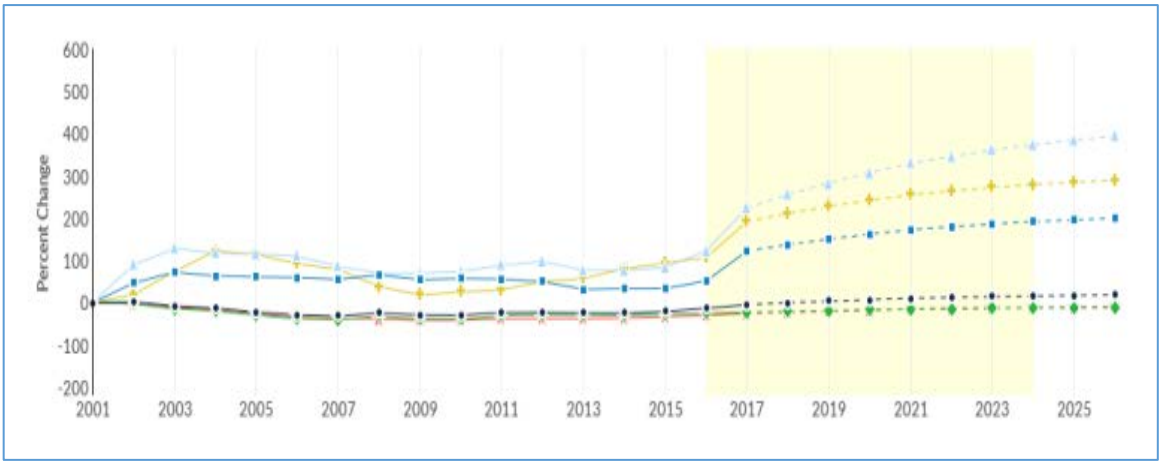
Typical employers include high tech industries, automation companies, robotic companies, manufacturers of electrical and electronic equipment, government, manufacturing industries, nuclear and hydropower generating companies, mining, petrochemical and natural resources consulting companies, power generation and power conversion plants, industrial instrument companies, information technology consulting firms and information technology units throughout private and public sectors. The table below gives a breakdown of the percentage of jobs by sector in 2016.

Industry	Occupation Jobs in Industry (2016)	% of Occupation in Industry (2016)	% of Total Jobs in Industry (2016)
Electric power generation transmission and distribution	390	35.1	4.0
Defense services	78	7.0	2.1
Building equipment contractors	64	5.7	0.9
Architectural, engineering and related services	49	4.4	1.5
General medical and surgical hospitals	41	3.6	0.3
Metalworking machinery manufacturing	34	6.7	2.8
Motor vehicle parts manufacturing	31	6.1	0.9

According to EMSI Analyst, the labour market for this occupation is projected to increase by 11.9 % overall in our region. Nationally, the occupation is projected to increase by 20.6 %.

Occupation Summary for technical occupations related to Mechatronics (for census divisions of Peterborough, Durham, Northumberland, Kawartha Lakes, & Hastings):

5,117	+11.9%
Jobs (2016)	**% Change (2016-2024)**
35% above National average	Nation: +20.6%



The wage estimates for mechatronic related positions in Ontario range from medians of $20.47/hour to $55.17/hour as shown in the table below (EMSI Analyst).

Wages estimates for positions related to Mechatronics in Ontario		
$20.47/hr	**$33.69/hr**	**$55.17/hr**
25th Percentile Wages	**Median Wages**	**75th Percentile Wages**

Occupation	Low Wages	Median Wages	High Wages
Electrical and electronics engineering technologists and technician (2241)	$18.10	$29.70	$51.00
Industrial instrument technicians and mechanics (2243)	$24.98	$38.00	$62.00
Mechanical engineering technologist (2232)	$18.00	$31.00	$50.00
Computer programmers and interactive media developers (2174)	$20.82	$36.06	$57.69

Electrical and electronics engineering technologists and technicians (NOC 2241), industrial instrument technicians and mechanics (NOC 2243) and mechanical engineering technologists and technicians (NOC 2232) are regulated occupations

under the Ontario Association of Engineering Technicians and Technologists (OACETT) in Ontario. Computer programmers and interactive media developers (NOC 2174) are not regulated occupations in Ontario.

Fleming's Mechatronics program graduates could apply for recognition under the Ontario Association of Engineering Technicians and Technologists (OACETT) upon graduation. The Ontario Association of Certified Engineering Technicians and Technologists (OACETT) is a non-profit, self-governing, professional association of over 25,000 members. OACETT is Ontario's independent certifying body for engineering and applied science technicians and technologists and confers the designations C.Tech. (Certified Technician) and C.E.T. (Certified Engineering Technologist).

5.2. Market Potential

Forty-two percent (42%) of Canada's labour force is considered highly susceptible (probability of 70% +) to automation within the next 10 – 20 years (Statistics Canada, as cited in ICP, 2017). We are currently undergoing what has been called the Fourth Industrial Revolution, so-called Industry 4.0, where changes to the fields of genetics, artificial intelligence (AI), robotics, nanotechnology, 3D printing, biotechnology, smart machines, networks and digitization are additive and fuel further changes (World Economic Forum, The Future of Jobs, as cited in Shank, 2016).

Technology and automation are creating demand for workers with a complex mix of skills, including technical, cognitive, interpersonal, digital and problem solving (ICP, 2017). According to Merkur (2018), the evolution and integration of automation and robotics is the top new trend in engineering. Robotics technology and automation will evolve at a very rapid pace. In particular, the development of self-driving cars and compact six axes industrial robots will result in an increase in the development of manufacturing sector robots thereby increasing the labour market for professionals that design, implement and maintain these technologies.

The Mechatronics program is a highly specialized, interdisciplinary engineering program designed to give our graduates this complex mix of skills to meet these present and future labour demands in the Industry 4.0 era. There is no NOC code specific to mechatronics as the field overlaps four main occupation groups. According to the Government of Canada's Job Market Reports - 2017-2019 period (jobbank.gc.ca), the employment outlook for the NOC codes associated with mechatronics have been classified as fair or good in Ontario (see table below).

NOC	Occupation Group	Muskoka-Kawartha	Ontario

2241	Electrical and electronics engineering technologists and technicians	“Undetermined”	“Fair”
2243	Industrial instrument technicians and mechanics	“Undetermined”	“Fair”
2232	Mechanical engineering design technologist	“Fair”	“Fair”
2174	Computer programmers and interactive media developers	“Good”	“Good”

According to the Canadian Occupational Projection System (COPS), the 10 year projection (2017-2026) nationally is summarized in the table below. It is important to note that the outlook for half of these NOC codes is classified as “shortage” the remaining half of these NOC codes is classified as “balanced”. Considering that mechatronics spans these fields, it is expected that there will be a labour shortage in this specialized field.

National Outlook	**Electrical and electronics engineering technologists and technicians (NOC 2241)**	**Industrial instrument technician and mechanics (2243)**	**Mechanical engineering technologists and technicians (2232)**	**Computer programmers and interactive media developers (2174)**
Occupations in this Group	Electrical and electronics engineering technologists and technicians (2241)	Industrial instrument technicians and mechanics (2243)	Mechanical engineering technologists and technicians (2232)	Computer programmers and interactive media developers (2174)
Outlook	Balanced Labour supply and demand expected to be in line over the 2017-2026 period	Balanced Labour supply and demand are expected to be in line over the 2017-2026 period at the national level	Shortage This occupational group is expected to face labour shortage over the period of 2017-2026 at the national level	Shortage This occupational group is expected to face labour shortage over the period of 2017-2026 at the national level
Skill Type	Natural and applied sciences and related occupations	Natural and applied sciences and related occupations	Natural and applied sciences and related occupations	Natural and applied sciences and related occupations

Skill Level	Occupations usually require college or vocational education	Occupations usually require college or vocational education	Occupations usually require college or vocational education	Occupations usually require university education
Employment in 2016	31,600	15,200	20,900	51,900
Median Age in 2016	40.9	42.2	40.5	39
Median Age of Retirement in 2016	61	61	64	61
Job Projections 2017-2016	**12,100** New job openings **11,900** new job seekers are expected	**7,000** New job openings **6,500** New job seekers are expected	**7,200** New job openings **7,700** New job seekers are expected	**52,300 New job openings** **53,800** new job seekers are expected

Please see Appendix II for recent samples of employment postings.

5.3. Evidence of Need

Fleming students and industry partners first expressed a need for a post-graduate program in this field. Industry partners and informal employment market research further indicated this pathway would provide more opportunities for employment for recent graduates. In addition, Fleming enrolment data has shown that our international student market overwhelming chooses Ontario College Graduate Certificates in the School of Trades and Technology and Business. This market has also expressed a desire for more options at this credential level.

This program will be unique in Ontario. There are just two programs at the Ontario College Graduate Certificate level that offer a program related to the field of mechatronics in Ontario. Fleming's Mechatronics program will be first at this credential level to focus solely on mechatronics. Therefore, this program would be filling a gap in program offering in Ontario.

Lastly, the environmental scan conducted in December 2018, indicated that occupations for technical occupations related to mechatronics is projected to increase by 11.9 % overall in our region. Nationally, the occupation is projected to increase by 20.6 %. In addition, the 10 year outlook for half of the NOC codes associated with this interdisciplinary field are projected to have labour shortages with the other half expected to have labour balances over the 2017-2026 period. The labour market for this occupation looks positive in Ontario and nationally.

5.4. The Competition

There are presently no Ontario College Graduate Certificates focused solely on the mechatronics field offered in Ontario public colleges. Therefore, the program was mapped to MTCU code 61021 (Electromechanical Engineering Technology) for the purposes of the CVS application.

There are no colleges offering the Electromechanical Engineering Technology Ontario College Advanced Diploma in the Central Region of Ontario. The registration data for three Electromechanical Engineering Technology diploma programs in Ontario can be found in the table below. There has been a trend in increasing registrations in most colleges from 2015 to 2018. It is important to note that the 2018/2019 academic year only includes fall registration data and only Humber College's program was included in the environmental scan (see Appendix III for competitors).

As aforementioned, two programs at the graduate certificate level in Ontario are related to the field of mechatronics. The two related programs at the Ontario College Graduate Certificate level are Conestoga's Robotics and Industrial Automation (Co-op) and Niagara's Industrial Automation programs. The Conestoga program is a new program starting in 2019/2020 and registration data is therefore not available. Niagara's Industrial Automation program has been offered for the past two years and has shown an increase in registrations (see table below). Both Niagara and Conestoga are located in the Central Ontario Region.

Total Registrations by College for Programs mapped to MTCU code 61021 (Electromechanical Engineering Technology)				
College	2018/2019*	2017/2018	2016/2017	2015/2016
Durham	30	23	24	17
Centennial	147	332	252	198
Humber	81	100	109	176
Total Registrations by College for similar Programs at the Ontario College Graduate Certificate level				
College	2018/2019*	2017/2018	2016/2017	2015/2016
Niagara**	22	15	-	-
Conestoga**	-	-	-	-

*Fall registration data only

**Central Ontario Region

6. Community Collaboration

6.1. Fleming College Board of Governors

Item	Meeting Date	Questions and Concerns Addressed with Actions Taken
Preliminary Program Proposal	Oct. 24, 2018	Full support

Business Case	May 22, 2019	

6.2. Fleming College Councils and Committees

The following committees, councils and/or external community partners were consulted during our research and program development process:

☒ Academic Council Meeting Date(s): Oct. 11, 2018
Decision/Support: Some concerns were expressed with present math courses and the ability for one school to offer five new programs next year. These concerns were addressed by the Dean.

☒ Board of Governors Meeting Date(s): Oct. 24, 2018
Decision/Support: Full support for preliminary program proposal

☒ Senior Management Team Meeting Date(s): November 2018
Decision/Support:

☒ Program Advisory Committee Meeting Date(s): Feb. 26, 2019
Decision/Support: Full support given in meeting; awaiting letters of support

☒ Strategic Enrolment Management Meeting Date(s): November 2018
Decision/Support:

6.3. Community, Industry, and Other Partners (If relevant. This may have been captured above with PAC meeting)

Organization	Meeting Date	Input and Feedback with Actions Taken
Reference Group	Feb. 26, 2019	All members approved the program concept. Please see Appendix IV for Letters of Support.
PAC	TBD	

7. Program Implementation

7.1. Responsible School

School of Trades and Technology

7.2. Staffing Requirements

There will be one new full time faculty hire for this program. Also, the current Trades and Technology faculty pool is rich with expertise related to electrical, computer and mechanical engineering who will assist in curriculum development and curriculum delivery.

7.3. Space and/or Equipment Requirements

Space requirements include computer labs, the engineering commons, storage space and a project room. The program requires 15 automation and pneumatic trainers and two Festo MPS 203s to be purchased and located in the engineering commons. Without this equipment, the program cannot be launched. Other equipment the program requires is six 3-D printers and a laser cutter. All equipment will be shared with the Electrical Engineering Technician Diploma, Instrumentation and Control Engineering Technician Diploma amongst several other Fleming programs. This equipment will also be shared with the new Maker Space.

7.4. Information Technology Requirements

The Mechatronics program does not have any specific information technology requirements and will make use of the current IT infrastructure and services provided by the college. The MATH 98 course currently requires students to bring a laptop with Microsoft Office Suite (free for students) and Geogebra (open source) installed. This laptop must be capable of wifi access.

The automation and pneumatic trainers, Festo MPS 203s equipment and 3-D printers will require considerable IT resources to set-up and install. A lead time of 1-2 months has been identified for implementation. Costs of this implementation is not fully known at present because set-up requirements have not been assessed.

7.5. Program Promotion Strategy (Launch plan/timelines/webpage development)

Target start date: Fall 2019

7.6. Office of the Registrar

Upon final MTCU approval for funding, program specifics will be loaded into Evolve.

7.7. Timelines

Registration: Fall 2019
Promotion start date: Spring 2019
Expected launch date: Fall 2019
Expected first cohort of graduates: Class of 2020
Program Review date: 2024/2025

8. Financial

8.1. Return On Investment At-A-Glance

Description	Class of '20 (Yr 1)	Class of '21 (Yr 2)	Class of '22 (Yr 3)	Class of '23 (Yr 4)	Class of '24 (Yr 5)	Class of '25 (Yr 6)
Revenue	$200,171	$384,540	$579,443	$642,655	$642,655	$642,655
Expenses	$189,427	$307,185	$363,152	$384,836	$384,836	$384,836
Cumulative Cash-Flow OR ROI	($811,457)	($734,102)	($517,811)	($259,992)	($2,174)	$255,645

8.2. Program Costing

Please see Appendix V for costing summary.

8.3. Financial Risks

Main financial risks include unexpected international student enrollment declines, domestic student recruitment challenges and/or shortfalls, lack of industry support (i.e. lack of applied projects and applied research opportunities related to the mechatronics industry), and the inability to purchase the required equipment listed in Section 7.3. The delay or inability to offer the program due to lack of equipment, would also have serious reputational risks.

Investment in the automation and pneumatic trainers, and Festo MPS 203s equipment is a financial risk if the college is unable to attract and to continue to attract students to this program. This equipment will initially require space, delivery, set-up labour and construction costs for room modifications to house the equipment. Over time, the equipment will also require maintenance, calibration and possible replacement.

8.4. Countermeasures

Recruiting from a greater number of geographic markets will help to offset the risk of losing access to any one international market. In order to improve the rate at which domestic students enter our Ontario Graduate Certificate programs, we need to better align our international and domestic recruitment processes and create a system wherein we can reserve a certain percentage of program seats for domestic applicants.

There are no countermeasures available for the inability to purchase and set-up the aforementioned program equipment. If this scenario occurs, the program will be delayed or cancelled.

In order to mitigate the financial risk of this equipment investment, the equipment will be shared with many other School of Trades and Technology programs and the Maker Space. There may also be opportunities for additional funding through applied research using this state-of-the-art equipment in collaboration with our business and industry partners.

9. Quality Assurance

Fleming College is committed to quality assurance processes that promote excellence in the development, design, delivery, and ongoing review of new and existing academic programs. Mechanisms are in place to demonstrate accountability to Fleming College students, the Board of Governors, the Ministry of Training, Colleges and Universities, and the communities we serve that will ensure all academic program meet or exceed the relevant quality standards including an ongoing and systematic program review process. *(See College Policy #2-213: Program Quality Assurance)*

10. Conclusion / Recommendation

THAT the Board of Governors of Sir Sandford Fleming College approve the Mechatronics Ontario College Graduate Certificate program for launch in Fall 2019.

11. References

Institute for Competitiveness and Prosperity (ICP). (2017, September). Labour market shift: training a highly skilled and resilient workforce in Ontario. Retrieved from: https://www.competeprosper.ca/uploads/The_labour_market_shift_in_Ontario_Sept_2017.pdf

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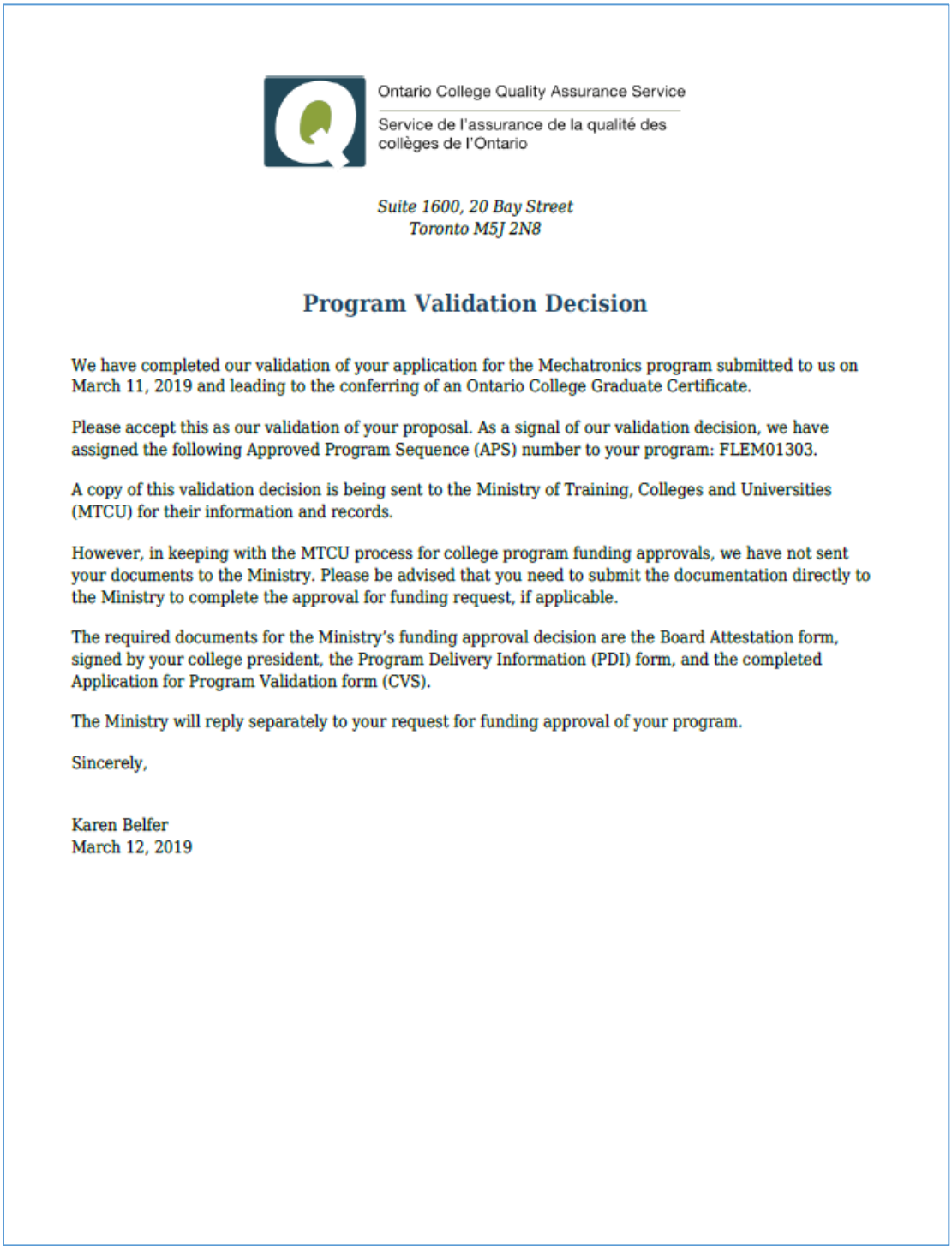
12. Appendices

12.1. Appendix I: CVS Application



Ontario College Quality Assurance Service

Service de l'assurance de la qualité des collèges de l'Ontario

Suite 1600, 20 Bay Street
Toronto M5J 2N8

Program Validation Decision

We have completed our validation of your application for the Mechatronics program submitted to us on March 11, 2019 and leading to the conferring of an Ontario College Graduate Certificate.

Please accept this as our validation of your proposal. As a signal of our validation decision, we have assigned the following Approved Program Sequence (APS) number to your program: FLEM01303.

A copy of this validation decision is being sent to the Ministry of Training, Colleges and Universities (MTCU) for their information and records.

However, in keeping with the MTCU process for college program funding approvals, we have not sent your documents to the Ministry. Please be advised that you need to submit the documentation directly to the Ministry to complete the approval for funding request, if applicable.

The required documents for the Ministry's funding approval decision are the Board Attestation form, signed by your college president, the Program Delivery Information (PDI) form, and the completed Application for Program Validation form (CVS).

The Ministry will reply separately to your request for funding approval of your program.

Sincerely,

Karen Belfer
March 12, 2019

Ontario College Quality Assurance Service

Service de l'assurance de la qualité des collèges de l'Ontario

Mechatronics

Fleming College | APS # FLEM01303 | MTCU # 61021
Ontario College Graduate Certificate | Funding requested - full-time

Purpose

The Mechatronics Ontario College Graduate Certificate offered by the School of Trades and Technology is a three semester interdisciplinary engineering program that focuses on advanced manufacturing, industrial automation, electronics engineering and computer programming

Admission

Completion of an Ontario College Diploma, Ontario College Advanced Diploma, or Degree, or equivalent in Electrical Engineering, Computer Engineering, Mechanical Engineering or related field. Successful completion of a Differential and Integral Calculus with a minimum grade of 70% or equivalent is highly recommended.

Occupational Areas

The mechatronics field is an interdisciplinary engineering field and falls under several NOC codes (Job Bank):

- 2241 – Electrical and electronics engineering technologists and technicians
- 2243 – Industrial instrument technicians and mechanics
- 2232 – Mechanical engineering technologists and technicians
- 2174 – Computer programmers and interactive media developers

Common entry-level job titles include:

- Mechatronics Technologist
- Automation Technologist
- Control Engineering Technologist
- Electronics Engineering Technologist
- Advanced Manufacturing Technologist
- Mechanical Engineering Development Technologist
- Nuclear Engineering Technologist
- Process Control Equipment Technologist
- Robotics Systems Technologist

Laddering Opportunities

Graduates of Diploma and Advanced Diploma programs will be interested in laddering into this Mechatronics program to specialize in the field.
Graduates of the program may be interested in laddering into Mechatronics Engineering or Electrical Engineering degree programs at UOIT for example.This would be most relevant for students coming from the Diploma or Advanced Diploma programs before taking Mechatronics.

Program VLOs

1. Design, fabricate and analyze advanced electronic circuits in accordance with industrial standards, and specifications.
2. Analyze, interpret, and produce electronic and mechanical drawings and other related technical documents for Mechatronics design in compliance with industrial standards.
3. Design and fabricate mechanical components and systems by applying engineering principles and practices.
4. Design, analyze, build, select, integrate, and troubleshoot a variety of industrial controllers, sensors, data acquisition devices and systems, digital circuits, automated system and microprocessor-based controllers.
5. establish and maintain inventory, records, and documentation systems to meet organizational and industry standards and requirements
6. Select and purchase Mechatronic equipment and components that fulfill job requirements and functional specifications.
7. Integrate fluid mechanics fundamentals and fluid power systems to design and fabricate Mechatronics systems.
8. Manage project management processes to ensure proper planning and execution of Mechatronic projects.
9. Develop, integrate, improve and troubleshoot software codes and configuration for designing user interfaces to work with industrial controllers and microprocessors
10. Develop embedded control programs for microcontrollers and PLCs to support Mechatronics applications.
11. Design and develop object orientated programs to integrate with Mechatronics applications.
12. Identify and utilize manufacturing processes, rapid prototyping methods, and advanced manufacturing technologies to optimize the product development processes.
13. Identify and utilize fundamentals of advanced technologies and methods such as machine learning, artificial intelligence and data analysis to create Mechatronic solutions

Curriculum

- **NEW 1 - Agile and LEAN Project Management** (Semester 1 - 45.00 hours)
  This is a multi-disciplinary course designed to help students develop their skills in managing technical projects using Agile and LEAN project management methods. Students will learn how to identify and plan a project and work toward achieving their project goals. They will interact with a team in ways that contribute to effective working relationships and the achievement of the project

goals. They will communicate in written, spoken, or visual format at various stages of the project. The course also includes evaluating the technical, interpersonal, and communication processes the team uses.

- **NEW 2 - Mechatronics 1** (Semester 1 - 60.00 hours)
  In this course students will learn about actuation devices and Operational Amplifiers. The course discusses the electrical actuators including Permanent Magnet Brushed DC motor, Solenoids, Brushless DC motors, Stepper Motors. Students will learn about the applications and characteristic of each actuator. The labs practices will provide hands-on experience in working and controlling the actuators. This course will also discuss Operational Amplifiers, Comparators and Feedback Control.
- **NEW 3 - Computer Programming** (Semester 1 - 45.00 hours)
  This is a computer-programming course using ANSI C; with an introduction to C++. Students will learn the basics of language syntax and programming structures. Students will learn the four phases in writing a program: (1) Analysis, (2) Design, (3) Implementation, and (4) Testing and Debugging. As well, the importance of documentation will be emphasized. Topics include: the top-down design approach, structured programming, Software Life Cycle, Modular Design, I/O, Program design techniques and flow charts, structure diagrams, and pseudocode, Strings and Character Manipulation. Although no formal prerequisites exist for this course, basic word processing skills, file management skills, and experience with the Windows environment would be useful. Students will also be introduced to the concept of Object-Oriented Programming.
- **NEW 5 - CAD and Rapid Prototyping** (Semester 1 - 60.00 hours)
  In this course, students will learn advanced applications of Computer Aided Design (CAD) in the mechanical and manufacturing engineering. Topics include the applications of CAD in assembly analysis, tolerance analysis/stackup validation, dynamic motion simulation/analysis, and design optimization. The students will learn to use rapid prototyping methods such as laser cutting, 3D printing, FD, SLA.
- **NEW 10 - Machine Design for Robotics** (Semester 1 - 45.00 hours)
  In this course students will learn about basic mechanical components used in robotic systems. The course covers couplings, brakes and clutches, anti-friction and journal bearings, helical, bevel and worm gearing, power screws, springs and machine assembly topics. Introduction to mechanical vibrations with emphasis on critical speeds of rotating bodies
- **MATH98 - Math for Technology 3** (Semester 1 - 45.00 hours)
  This course will consolidate the foundational mathematical concepts of technical engineering. The topics covered include: limits, derivatives of algebraic and transcendental functions and their applications, selected methods of integration, and differential equations. All topics are covered with applicable problem sets. Both algebraic and technology-assisted solutions are explored.
- **NEW 4 - Electro Pneumatic** (Semester 2 - 45.00 hours)
  This course covers the basics of pneumatic and electro-pneumatic control circuits in a complex mechatronic system. Students will learn the functions and properties of control elements based on physical principles, and the roles they play within the system. Technical documentation such as data sheets, circuit diagrams, displacement step diagrams and function charts will also be covered. By understanding and performing measurements on the pneumatic control circuits, students will learn and apply troubleshooting strategies to identify, localise and correct malfunctions.
- **NEW 6 - Applied Project 1** (Semester 2 - 120.00 hours)
  In Applied Project, students continue the project, which was planned during the Semester 1. This is a team-based project which you will execute for an enterprise sponsor. The enterprise sponsor is one who provides the setting for a real-world problem to form the basis of the project. Typically, it is back-burner project that is non-mission critical but can add real value to a sponsor's products and/or services. Most importantly, it will be a learning experience. You continue to work under the

guidance of your faculty mentor. Interdisciplinary faculty advisors may assist with communication and team skills.

- **NEW 7 - Mechatronics 2** (Semester 2 - 60.00 hours)
  This course discusses the sensors, signal conditioning, active and digital filtering. The students will learn about different sensors and actuators used in Mechatronics systems. They will also learn about digital signal and signal conditioning processes. The active and digital filter will be discussed, and students will learn about filter characteristic and tuning. The lab practices provide opportunity to implement and use variety of sensors and process the sensors' signals in order to control a Mechatronics system.
- **NEW 8 - Industrial Control Systems** (Semester 2 - 45.00 hours)
  This course covers the fundamentals of Programmable Logic Controllers (PLCs). Students will learn the basics of PLCs, including how PLCs function, how to program PLCs, and how to design automated systems that are controlled by PLCs. In addition, students will learn the control of systems that incorporate pneumatic and/or hydraulic components.
- **NEW 9 - SCADA/HMI** (Semester 2 - 60.00 hours)
  This course will introduce students to SCADA architecture and associated hardware, software, and communications protocols. Topics included introduction to SCADA, digital conversion theory, sensors and detectors, noise and filtering, communication protocols, databases and process control evaluation.
- **NEW 11 - Applied Project 2** (Semester 3 - 120.00 hours)
  Students use the skills and techniques learned in other courses, to continue to execute and close an applied project which was planned and partly executed the previous semester.
- **NEW 12 - Mechatronics 3** (Semester 3 - 60.00 hours)
  Investigates the software and hardware involved in the real-time control of a microprocessor-based system. Topics include microprocessor architecture, assembly language programming, input/output operations, handshaking, protocols, timer system, interrupt handling, address decoding and interfacing techniques. Troubleshooting techniques used in a fault analysis are also taught. Throughout the course, a single board microcontroller system is used to facilitate a detailed analysis of hardware and software involved. An automated controller system is designed, built and tested.
- **NEW 13 - Intro to Machine Learning, AI and IOT** (Semester 3 - 45.00 hours)
  This course will introduce students state-of-art technologies and trends that related to Mechatronics applications. The main topics are Machine learning, Artificial intelligence (AI) and Internet-of-Things (IoT). The topics include perception and cognition, reasoning and learning, the architecture and framework of IoT, Low Powered Wide Area Network (LPWAN), sensor fusion.
- **NEW 14 - Advanced Manufacturing Processes** (Semester 3 - 45.00 hours)
  This course covers the basics of major manufacturing methods used today. Topics include metal cutting, welding, forming, casting, plastics processing, methods of numerical control and robotics programming as well as methods of measurement and inspection. The course addresses the principles upon which modern manufacturing processes are based.
- **NEW 15 - Industrial Networking** (Semester 3 - 45.00 hours)
  This course describes the architecture, components, and operations of routers, and explains the principles of routing and switching protocols. Students learn how to configure a switches and routers for basic and advanced functionality. By the end of this course, students will be able to configure and troubleshoot routers and switches and resolve common issues with VLANS, RIP, DHCP, ACL for both IPv4 and IPv6 networks, and NAT for IPv4 networks.

VLO Mapping

Code	1	2	3	4	5	6	7	8	9	10	11	12	13
NEW 1					X			X					
NEW 2		X	X			X	X						
NEW 3									X		X		
NEW 5		X											
NEW 10			X			X							X
MATH98													
NEW 4			X				X						
NEW 6	X	X	X	X	X	X		X	X	X	X	X	X
NEW 7	X	X				X	X						
NEW 8				X					X	X			
NEW 9				X						X			
NEW 11	X	X	X	X	X				X	X	X	X	
NEW 12	X	X	X	X		X							
NEW 13													X
NEW 14												X	
NEW 15											X		

Certification/Accreditation

Certification type:

There is a voluntary (i.e., not required by legislation) licensing or certification for entry to practice in the profession or trade (Voluntary recognition of a regulatory authority is being sought)

Details

Name of voluntary association:

Technology Accreditation Canada

The college is working toward recognition

Current status of application

We will be submitting an application in time to arrange a site visit when the program is running.

Expected date of recognition

Spring 2020

Attachments

None

Contact Information

Jodie Black, Teaching and Learning Consultant
T: 705-749-5530;1619 | E: jodie.black@flemingcollege.ca

12.2. Appendix II: Employment Postings

This program training is required in all three of the postings below (see highlighted phrases).

SAMPLE POSTING 1

Mechanical Designer

TS Manufacturing - Lindsay, ON

$45,000 - $60,000 a year

The successful candidate will possess strong general mechanical skills to work in our design office in Lindsay, Ontario. Based on the candidates experience they will use their skills to successfully take projects from Project Managers and prepare designs for issue to manufacturing. In addition, they will provide shop and installation support for manufacturing personnel and customers. Salary range is based on experience and is $45,000 to $60,000.

Key Duties Include*

- Independent and Team efforts on large multidiscipline design and detail projects
- CAD Design and Detail of mechanical/electrical/pneumatic/hydraulic systems and materials, some technical selection, sizing and evaluation of equipment and parts
- Detailed Design and CAD design completely or to support other junior designers/detailers in the department
- Submit drawings for approval and provide fabrication/assembly technical support
- Participate in Pre/Post-Design reviews
- Monitor and Mentor junior team members
  (Depending on the candidates strengths – subject to vary slightly)

Desired Skills & Experience

- Minimum 3 year -Dip. Eng. Technology – Mechanical or Mechatronics
- 5-7 years Minimum design/detailing experience in related industries
- Working Experience in one or more of the following specialty areas;
  - Manufacturing design as it relates to Fabrication/Assembly of Automated Equipment
  - Pneumatics and hydraulics design/detailing
  - Knowledge of automated systems PLC programming, interfacing and componentry
- Ability to work in a multi-disciplinary team (both internal and remote), including mechanical, structural, electrical, instrumentation, and CAD support
- Fully versed in Autodesk AutoCAD 2015 or later, and Microsoft Office
- Excellent verbal and written communication skills
- Legally entitled to work in Canada
- Be able to legally cross the border in the United States
- Occasional Travel may be required

- Ability to work extra hours to ensure a successful project when required
- Advanced 3D CAD experience (Autodesk Inventor is an asset)

SAMPLE POSTING 2

Mechanical Engineering Designer
Prodigy Robotics & Automation
Brantford, ON

Prodigy Robotics & Automation Inc. is seeking a Mechanical Engineering Designer within the Engineering & Controls team. We are looking for a hardworking and capable individual to design and implement Mechanical systems.

Skill Requirements

Strong communication skills with desire to take on new challenges and uncover practical solutions to technical problems
Hardworking leader with a commitment to excellence and continuous improvement
Advanced knowledge of Solidworks, Autocad mechanical design software
Developing 3D models for custom machinery design
Knowledge of safety systems related to robotic cells and machinery safety design
Proficiency in Microsoft Excel and Office applications
Excellent organization skills and the ability to work independently or within a team environment prioritizing in order to meet specified milestone dates

Responsibilities

Proficient with project and service documentation. Including technical notes, details on projects and service work performed
On-site investigations to mechanical design requirements for both new equipment or modifications to existing equipment
Design, test and simulate 3D mechanical models
Develop and maintain Solidworks revisions, toolbox and CAD library for both purchased parts and manufactured parts
Create offline robot simulations using Solidworks models imported to 3rd party specific software, including reach studies
Ability to manage customer relationships and project scope
mechanical study and problem solving of machines at customer sites
Project management

Qualifications

You have a Mechatronics, Mechanical Engineering or related Degree, Engineering Technology Diploma or equivalent
Strong analytical and problem solving skills
Highly motivated team player
Must have 1 to 3 years of experience in mechanical designs

Hold and maintain a valid Class G license
Have reliable and dependable transportation
Additional Information

This position is based out of our head office in Brantford, ON with requirement to travel internationally and domestically without restrictions on a occasional basis.

Continuous required training is supplied with our current partnerships with Solidworks and Cad Micro systems.

We offer competitive wages and benefits packages.

Qualified applicants, please submit a resume to –email and quote the position title in the subject line.

SAMPLE POSTING 3

Application Developer

Cimcorp Automation Ltd.

Grimsby, ON

Job Summary

Reporting to the Systems Integration Manager, this position is responsible for the research, design,development, and testing of custom software systems for Cimcorp. This involves the day to day interaction with other software team members to define appropriate software architecture, specify technologies to use, and develop code applying industry standards. In addition, the Application Developer is responsible for providing overall technical support to other Cimcorp employees relating to software.

DETAILS OF DUTIES:

- Research, design, develop, and test custom software systems for Cimcorp. This involves utilizing customer requirements as well as provides software solutions for our customers through system troubleshooting and diagnostics.
- Utilize internal resources such as other software team members, and project managers as well as historical information to achieve design specifications.
- Participate in kick off meetings to gain sufficient knowledge on project specifications in order to design appropriate software.
- Participate in software testing at Cimcorp Automation Ltd. prior to system delivery as well as software testing at site during system commissioning. This requires the collaboration of software, shop employees, engineers, and potentially customers to ensure the system meets expectations.

- Participate in system commissioning and run off testing at site. This involves deploying the Cimcorp's software system, ensuring the functionality meets design requirements and reaches a functioning state. This includes liaising with other Cimcorp employees, contractors, and customers to identify and resolve inefficiencies. In addition, the Application Developer is responsible for integrated testing.
- Responsible for production testing at site to verify performance and reliability of the system. This involves communicating with Project Managers to address concerns and receive system satisfaction and acceptance.
- Provide training on software systems purchased by Cimcorp customers through onsite instruction and hands on training.
- Assist with the development of Communication Specification documents for end users.
- Provide technical system support to customers prior to customer support hand off.
- Attend Customer Support project hand off meetings.
- Respond to inquiries, questions, concerns from individual employees and departments. This involves providing technical support in the area of software applications and integration.
- Responsible for providing periodic 24/7 telephone/remote software support for existing customers as scheduled. This involves the usage of a temporary or permanently assigned company mobile communication device.
- Responsible for building strong relationships with clients that foster long term business relationships.
- Ensure all Cimcorp health and safety policies, procedures, and responsibilities under the OHSA, are followed during all work activities both at the installation site, and at Cimcorp Automation Ltd.
- Perform other related duties as assigned.

SKILL/KNOWLEDGE REQUIREMENTS:

Varying degrees of knowledge are required in the following areas:

- Strong working knowledge in Microsoft .Net framework, Visual Basic .Net, and C# languages using Visual Studio Integrated Development Environment (IDE).
- Working knowledge of Java technologies
- Knowledge of Microsoft Transact SQL, and Oracle.
- Experience in PLC programming (IEC 1131).
- Knowledge of source control using Team Foundation Server (TFS) and Git.
- Experience programming automation components, HMI's and material handling robots is considered an asset.
- Availability to work flexible hours including evenings, weekends, and well as travel and work overtime sometimes at short notice in order to maintain project schedules and adhere to timelines.
- Proficiency in Microsoft Word and Excel, Outlook, and the Internet.

- Ability to learn quickly, adapt to change, and work under pressure in a multifaceted environment.
- Demonstrated ability to work independently and as part of multi-function team with little supervision
- Excellent interpersonal and communication skills; ability to deal courteously and effectively with all levels of staff, the public, customers, partners, and any other potential stakeholders.
- Problem-solving skills, discretion, and demonstrated ability to exercise good judgment when handling confidential/sensitive information and communicating with customers regarding controversial matters.
- Effective organizational, time management, and multi-tasking skills, with ability to prioritize work to meet customer service standards and deadlines without compromising service.
- Spoken/written knowledge of additional languages an asset.

QUALIFICATIONS/CERTIFICATIONS:

- Post-secondary diploma or degree specializing in Software Engineering/Mechatronics, Computer Science, or equivalent combination of education and experience.
- Demonstrated experience working in software integration in an industrial/engineering/automation industry in a development and integration capacity.

TRAVEL REQUIREMENTS:

- Travel is required for this position averaging between 15% to 30%.
- Valid driver's license, passport and non-restrictive travel ability to market countries are requirements for this position.

WHY SHOULD YOU JOIN OUR TEAM?

- Competitive compensation packages
- Employee Group Benefits Plan (including health and dental coverage, life insurance, health spending account, long-term disability)
- Tuition reimbursement program
- Flexible working hours
- Travel opportunities
- Employee Profit Sharing Plan
- Growth and professional development opportunities
- The opportunity to join one of the largest material handling companies in the world

ABOUT US

Cimcorp is a leading global supplier of turnkey automation for intralogistics that uses advanced robotics and software technologies. As well as being a manufacturer and integrator of pioneering

material handling systems for the tire industry, we have also developed unique robotic solutions for order fulfillment and storage that are being used in the food & beverage, retail, e-commerce, fast-moving consumer goods (FMCG) and postal services sectors. In addition, we offer comprehensive customer support services.

With locations in Finland, Canada and the United States, Cimcorp Group has in excess of 400 employees and has supplied more than 2,500 logistics automation solutions in 40 countries across five continents.

At Cimcorp we don't fill vacancies; we solve our clients' business challenges by sourcing the best people with the right mix of skills, experience and attitude.

Cimcorp welcomes and encourages applications from people with disabilities. Accommodations are available on request for candidates taking part in all aspects of the selection process.

12.3. Appendix III: Competitors

This program was mapped to the Electromechanical Engineering Technology Standards. The Mechatronics program more closely resembles this program than any existing descriptions at the Ontario Graduate Certificate level. Registration data was included for Humber College in this Business Case (highlighted below).

COLLEGE	PROGRAM TITLE	LENGTH, TYPE (DIPLOMA, CERT., POST)	DELIVERY METHOD(S)	OTHER (UNIQUE TO THE PROGRAM)
Cambrian	Electromechanical Engineering Technician - Mechatronics	Diploma 2 years with 4 semesters	In-Class delivery model	Graduates from the Technician diploma may be eligible to register as a Certified Technician (C.Tech) with the Ontario Association of Certified Technicians and Technologists (OACETT)
Mohawk	Computer Engineering Technician – Mechatronic Systems	Diploma 2 years with 4 semesters	Approximately 70% of the program is delivered in the laboratory where you will use, apply, design and build mechatronic and smart systems just as you would in the real world.	Study curriculum and contents from organizations including IEEE, CompTIA and Cisco Academy, Altera, Siemens and other industrial partners.
Seneca	Electronics Engineering Technician	Diploma 2 years, 4 semesters	Semester 3 option for Electrical Engineering Technician Co-op Placement Offers the following courses: Introduction to Mechatronics and Mechatronics: Pneumatics and Hydraulics	This program is designed to meet accreditation requirements mandated by Canadian Council of Technicians and Technologists (CCTT), the Canadian Technology Accreditation Board (CTAB) and the Ontario Association of Certified Engineering Technicians and Technologists (OACETT)

Seneca	Electronics Engineering Technology	Advanced Diploma 3 years with 6 semesters	In-Class delivery model Offers the following courses: Introduction to Mechatronics and Mechatronics: Pneumatics and Hydraulics Optional co-op placement	This program is designed to meet accreditation requirements mandated by Canadian Council of Technicians and Technologists, the Canadian Technology Accreditation Board and the Ontario Association of Certified Engineering Technicians and Technologists. Cisco Certified Network associate A+, Network+ and Microsoft Certified Solutions expert
Humber	Electromechanical Engineering Technology	Advanced diploma 3 years with 6 semesters	In-Class delivery model with 2 semesters of optional co-op placements Offers the following courses: Mechatronics 1 Mechatronics 2 Mechatronics 3	

12.4. Appendix IV: Letters of Support

To whom it may concern,

I am writing to express my support for the proposed Mechatronics Ontarion College Graduate Certificate at Fleming College, in the School of Trades and Technology. This program is proposed to start Fall of 2019.

At the Innovation Cluster our services are designed to be responsive to the changing needs of today's fast-growing, knowledge intensive, technology-led companies. We have an excellent track record of helping startups become successful. The Cube contributes to the growth of a competitive economy and to the wealth and prosperity of our community. The Innovation Cluster is a full partner to Fleming College and support graduate start-ups from the College. The existing programs available at Fleming, provide students with a wide range of employable skills related to Electrical Engineering and Instrumentation and Control and now with the promise of the newly created Mechatronics program, we will see skilled employable students with the right skills to be able to start-up their own company or enter the very lucrative field of Mechatronics.

I am confident that this new program addresses a demonstrated interest from prospective students, provides meaningful training and employable skills, and will complement the related programs Fleming already offers. I am keeping this letter short – but please do not hesitate to contact me with any questions.

John Gillis

Peterborough and Kawartha Innovation Cluster

Innovation Cluster | 270 George St. N, 3rd Floor | Peterborough, ON | K9J 3H1
(705) 536-1101 | www.innovationcluster.ca

March 14, 2019
Sean McQueen
1777 Bissonnette Dr.
Peterborough, ON
K9H 0B6

Attn: Dean Maxine Mann
School of Trades and Technology
Sir Sandford Fleming College
599 Brealey Drive
Peterborough, ON
K9J 7B1

As part of a reference group for the School of Trades and Technology at Sir Sandford Fleming College I have had the opportunity to review the proposed Mechatronics Ontario College Graduate Certificate curriculum, and I would like to express my support for this program.

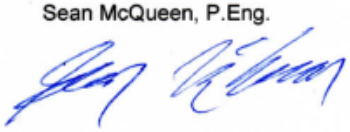
For the past decade I have worked the in area of naval equipment design, in various engineering/engineering management roles. Naval product development requires cross functional teams with technical expertise in a variety of areas. The mix of skills required varies from project to project, and it is increasingly recognized that the ability of designers to flex between different skillsets is key to effectively meeting changing business demands. For this reason, fostering a workforce where technical staff have competence in more than one discipline has been a trend for both employee development and recruitment.

In our industry solid modelling, hydraulics design, software design and electrical controls are core skills, and AI (Artificial Intelligence) is expected to take on greater importance moving forward. The curriculum proposed for the Mechatronics Ontario College Graduate Certificate program at Fleming focuses on the right mix of these skills at the right level to provide graduates needed by industry. It is clear that the program is also well positioned to meet the development needs of working professionals looking to take on broader technical roles.

Once again, I fully support the proposed Mechatronics Ontario College Graduate Certificate curriculum and I look forward to contributing to the development and implementation of this exciting program as it comes online this fall.

Yours Sincerely,

Sean McQueen, P.Eng.



Thu 21/03/2019 7:42 PM

peterstumpf@siemens.com

Reference for the creation of a Mechatronics Program at Fleming College

To Fereydoon Diba; Kristine McBride

Cc Maxine Mann

You replied to this message on 22/03/2019 9:23 AM.

Dear Fereydoon and Kristine:

I would like to take this opportunity and express my support for the creation of a Mechatronics Program at Fleming College.

With great interest, I reviewed your proposed curriculum and the infrastructure Fleming College provides to support an Ontario College Graduate Certification in Mechatronics.

I can attest to the quality of courses that are included in the proposed curriculum for Mechatronics such as project management, computer sciences, industrial control systems and instrumentation that I believe will build a foundation to a Mechatronics Program that can exceed the high standards required by Industry.

I am very confident that this new program creates great interest with prospective students and, it will provide competitive training and employable skills that are required by our industry.

Please do not hesitate to contact me with any questions.

With best regards,
PETER STUMPF P.Eng., PMP
R&D Manager - Test and Certification

Siemens Canada Limited
Process Instrumentation / Level&Weighing Technology / Research and Development
PD PA PI R&D LWT PM
1954 Technology Drive
Peterborough ON K9J 6X7, Canada
Tel.: +1 705 740-7091
Fax: +1 705 741-0466
mailto:peterstumpf@siemens.com

12.5. Appendix V: Costing Summary

Sir Sandford Fleming College - Program Costing						
Program Name: Mechatronics						
			Gross Tuition (per semester)			$ 2,100
			BOG (per yr)			$ 4,300
			Attrition			10%
			WFU per semester			0.74
(All values expressed in current dollars)						
	Year 1	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
Semester 1 Enrolment	20	30	45	45	45	45
Semester 2 Enrolment	18	27	40	40	40	40
Semester 3 Enrolment		16	25	37	37	37
Total Enrolment	38	73	110	122	122	122
Revenues						
Tuition Fees	$ 79,800	$ 153,300	$ 231,000	$ 256,200	$ 256,200	$ 256,200
MTCU Operating Grant	120,371	231,240	348,443	386,455	386,455	386,455
Total	**200,171**	**384,540**	**579,443**	**642,655**	**642,655**	**642,655**
Expenses						
Academic Direct	149,656	241,014	281,791	298,549	298,549	298,549
Program Coordinator	15,285	26,203	26,203	26,203	26,203	26,203
Technician						
Course Supplies	8,886	10,000	10,000	10,000	10,000	10,000
Tuition Set Aside	3,990	7,665	11,550	12,810	12,810	12,810
Dean & Other academic costs	11,610	22,303	33,608	37,274	37,274	37,274
Total	**$ 189,427**	**$ 307,185**	**$ 363,152**	**$ 384,836**	**$ 384,836**	**$ 384,836**
Net Contribution or (Cost) of Proposed New Program before Overheads	10,745	77,355	216,291	257,819	257,819	257,819
Contribution %	5.4%	20.1%	37.3%	40.1%	40.1%	40.1%
Festo Trainer Development Costs	702,366 119,836					
College Overhead	70,560	135,550	204,254	226,536	226,536	226,536
Net Contribution or (Cost) of Proposed New Program	**($882,018)**	**($58,196)**	**$12,037**	**$31,283**	**$31,283**	**$31,283**
Cumulative Cash Flow Excluding Overhead	**($811,457)**	**($734,102)**	**($517,811)**	**($259,992)**	**($2,174)**	**$255,645**
Assumptions:						
1. Dean and other academic administrative expenses allocated at 5.8% of revenue						
2. Academic delivery costs are calculated based on an average of 54% contract delivery.						
3. College overhead is allocated at 35.25% of revenue						

12.6. Appendix VI: MTCU Program Delivery Information (PDI)

	Semester					
Funded Instructional Setting	1	2	3	4	5	Total
Classroom instruction	135	90	105	0	0	330
Laboratory/workshop/fieldwork	165	120	90	0	0	375
Independent (self-paced)	0	0	0	0	0	0
One-on-one instruction	0	0	0	0	0	0
Clinical placement	0	0	0	0	0	0
Field placement/work placement	0	120	120	0	0	240
Small group tutorial	0	0	0	0	0	0
Total	300	330	315	0	0	945

	Semester					
Non Funded Instructional Settings	1	2	3	4	5	Total
Co-op work placement - Mandatory	0	0	0	0	0	0
Co-op work placement - Optional	0	0	0	0	0	0
Degree work placement – Mandatory (shorter than Co-op)	0	0	0	0	0	0
Total	300	330	315	0	0	945

Total	1	2	3	4	5	Total
Grand Total	300	330	315	0	0	945

SUBMISSION TO THE BOARD OF GOVERNORS

Agenda Item xx

Report Title: Amendment to the New Program Proposal: Business Analytics, Ontario Graduate Certificate Briefing Note
Report to: Public Board Meeting **Meeting Date: May 22, 2019**
Requested Action: For Information
Prepared and Submitted by: Brett Goodwin, School of Environmental & Natural Resource Sciences; Carol Kelsey, Dean of Health & Wellness and Justice & Community Development; Jason Jackson, Dean (Acting) of School of Trades & Technology

OVERVIEW / BACKGROUND

The purpose of this amendment is to inform the Board of Governors of the changes in scope of the original Business Analytics Ontario Graduate Certificate new program proposal. The original program concept was presented to the Board of Governors for input/consultation on October 24, 2018. As the program was beginning to be developed, the Dean of Health & Wellness approached the Dean of the Schools of Business and Trades & Technology with the idea of creating a collaboration between the schools to deliver a more general data analytics program with options for specialization.

As discussions continued on broadening the scope of the Business Analytics program, the Dean of the School of Environmental and Natural Resource Sciences was included to determine if other Schools would be interested in offering this programming. After much consultation, the decision was made to broaden the scope of the original program concept to create a more general applied data analytics graduate certificate program that allows for specializations in: business, crime, health, and environmental analytics.

ANALYSIS / PROPOSED OPTIONS

The scope of analysis will depend on the nature of the issue but may include Legal Impact; Financial/HR Implications; Student Impact; Stakeholder Implications. Pros and Cons for each option should be identified as appropriate.

The Business Analytics program concept has now changed in scope with a new launch date and program title. The new program concept is now a partnership between the following schools: School of Environmental and Natural Resource Sciences, School of Business, School of Trades and Technology, School of Justice and Community Development, and the School Health and Wellness. The new program concept, now titled Applied Data Analytics, will first provide a common background in data analytics and then provide students an ability to specialize in the fields of business, crime, health, and environmental analytics.

The program will consist of three semesters where the first and some of the second semester will be shared, common curriculum covering the theory and practice of large data analytics. The remaining curriculum will consist of program electives and an applied project where students will build on the general material from the first part of the program while specializing in one of the fields of business, community safety, health, or environmental analytics. This structure allows the new program to use the general scope of the first part of the program to develop efficiencies in program presentation while still allowing for targeted training in various branches of analytics.

In recognition of the potential for the lack of technical skills to represent a barrier to success for some students, the new program will be designed with a bridging/preparation (pre-program), optional semester for students that need to strengthen their technology and/or math and statistics skills before entering the program. This bridging semester will allow students who may have an interest in data analytics in a particular field but a weaker background in statistical or data analysis an opportunity to succeed in the graduate certificate.

The launch date for the program has been shifted to Fall 2020 to allow the program to come to market as soon as is possible.

Target Launch date: Fall 2020

Credential: Ontario College Graduate Certificate

RISK CATEGORY

Select all that apply *(to check a box, double click; from drop-down menu, select "checked" under Default Value)*

☐ External Environment ☐ Internal Environment ☐ Financial ☐ Human Resources
☐ Information Technology ☐ Legal ☐ Operational ☒ Strategic ☐ N/A

With increasing demands for analysis of large and complex data sets across multiple disciplines, there is an anticipated need for a trained work force who are adept in a number of disciplinary fields who can also work with data and professional data analysts. Without development of a data analytics program, Fleming College risks falling behind other colleges in terms of training in data analytics.

RECOMMENDATION AND/OR MOTION *(i.e. Receive the update on Winter Enrolment for information. Refer the matter to Committee for further investigation. Approve the proposed xyz program of instruction.)*

It is recommended the Board of Governors of Sir Sandford Fleming College:

Provide the Amendment to the New Program Proposal: Business Analytics report for information.

SUPPORTING DOCUMENTATION

Original Briefing Note: New Program Proposal: Business Analytics ON Grad Cert

SUBMISSION TO THE BOARD OF GOVERNORS

Agenda Item xx

Report Title: SkillsAdvance Ontario Pilot
Report to: Public Board Meeting **Meeting Date: May 22, 2019**
Requested Action: For Information
Prepared and Submitted by: Jason Jackson, Dean – School of Trades and Technology

OVERVIEW / BACKGROUND

The SkillsAdvance Ontario (SAO) pilot project is intended to support workforce development in identified key growth sectors.

It funds partnerships that connect employers with the employment and training services required to recruit and advance workers with the right essential, technical, and employability skills. It also supports jobseekers to obtain employment by providing them with sector-specific employment and training services, and connecting them to the right employers.

Skills Advance Ontario embodies a sector-focused strategy that takes into consideration the dynamic nature of regional economies and labour markets, as well as the evolving requirements of different industrial sectors. Skills Advance Ontario projects provide the ministry the opportunity to test the effectiveness and efficiencies of sector-focused, partnership-based programming.

ANALYSIS / PROPOSED OPTIONS

The scope of analysis will depend on the nature of the issue but may include Legal Impact; Financial/HR Implications; Student Impact; Stakeholder Implications. Pros and Cons for each option should be identified as appropriate.

Easter Ontario College Consortium - Steel and Aluminum Manufacturing and Metal Fabrication Sector of Eastern Ontario. – Submitted (VALUE – up to $ 6,000,000)

Canada is the biggest supplier of steel and aluminum to the United States and exports nearly 90 per cent of its steel to the U.S. The U.S. tariffs on Canadian steel and aluminum have negatively affected Ontario manufacturers and metal fabricators resulting in rising prices and job loss. In addition to these tariffs, the steel and aluminum manufacturing and metal fabrication sector faces ongoing challenges from skilled labour shortages, rapid technological change in manufacturing, and a surge in imports from non-NAFTA countries.

The impacts of the steel and aluminum tariffs on Canadian steel are expected to be felt mostly in Ontario, which has the highest share of steel production workers in Canada. While the direct economic impact of job losses and rising prices have affected the steel and aluminum manufacturing and metal fabrication sector, the indirect and induced economic impacts have deeply affected local economic activity across Ontario.

The Eastern Ontario region of the steel and aluminum manufacturing and metal fabrication sector faces one of the highest levels of potential risk to their labour market. With the negative impact of tariffs on its sales.

The Eastern Ontario College Consortium (Comprised of Algonquin (Lead), St. Lawrence, Sir Sandford Fleming, La Cité and Loyalist) is proposing to work collaboratively with the Ontario Ministry of Training, Colleges and Universities and the steel and aluminum manufacturing and metal fabrication sector of Eastern Ontario to develop a training initiative to deliver skills training and upgrading that meets the sector's workforce training challenge.

Each of the Eastern Ontario Consortium Colleges have corporate training divisions actively involved in delivery of off-the-shelf and customized training to employers in the region. Further, the Consortium Colleges' training units are members of the Ontario College's Corporate Training Network, and have direct experience collaborating with each other in the development and delivery of industry training in the Eastern Ontario.

There are two critically important elements to the workforce training challenge of the steel and aluminum manufacturing and metal fabrication sector of eastern Ontario. The first is the continuous improvement on the technical side that is, ensuring that workers not only enhance their general skills, but also expand those skills to adapt to new technologies, equipment and processes. The second element is enhancing leadership training for the next generation of manufacturing management.

The objective of this training initiative is to provide specialized workplace skills and management training to the steel and aluminum manufacturing and metal fabrication sector of Eastern Ontario.

The desired outcomes are long-term labour retention, and increasing the skillset, resiliency and competitiveness of the existing workforce of the steel and aluminum manufacturing and metal fabrication sector of Eastern Ontario.

This training initiative will identify a number of common training categories required by steel and aluminum companies and deliver training to all interested companies in Eastern Ontario through this collaborative training model.
The training would allow laid-off workers to train during periods of production slow-down, address certain identified recruitment challenges, as well as providing all types of training needs as indicated by employers in the sector.

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The desired outcomes are long-term labour retention, and increasing the skillset, resiliency and competitiveness of the existing workforce of the steel and aluminum manufacturing and metal fabrication sector of Eastern Ontario.

This training initiative will identify a number of common training categories required by steel and aluminum companies and deliver training to all interested companies in Eastern Ontario through this collaborative training model.

The training would allow laid-off workers to train during periods of production slow-down, address certain identified recruitment challenges, as well as providing all types of training needs as indicated by employers in the sector.

This training initiative will be developed and delivered in a collaborative partnership model by the Eastern Ontario College Consortium with Algonquin College as the lead organization and agreement-holder responsible for managing and distributing funds, acting as a coordinating body and ultimately accountable to the Ministry.

Aviation and Manufacturing Skills Advance Proposal – Draft (VALUE – up to $ 1,000,000)

The Aviation and Manufacturing Sectors in the Peterborough and Kawartha Lakes has vast potential for growth with skilled labour being a limiting factor.

Flying Colours – Flying Colours Corp., is a privately owned and operated aviation services company that has been operating since 1989. Our dedicated team of trained technicians provide comprehensive maintenance, repair and overhaul expertise as well as completions, modifications, avionics and paint services for business aircraft.

Team Eagle - Leading Supplier of Snow and Ice Removal Equipment, ARFF Vehicles, GPS/GIS Situational Awareness, Safety Management Systems, and Digital Inspection and Monitoring Systems for Today's Airfield Management Professionals.

Sanfran Electronics and Defense Canada – Develops, produces and supports embedded computers and systems for Aerospace and Defense applications.

Fleming College School of Trades and Technology - The Kawartha Trades and Technology Centre, through a unique partnership with education and industry, teaches and trains students from regional secondary schools, Fleming College and regional industry. The facility provides new space and equipment for training in areas such as carpentry, welding, plumbing, manufacturing, computer and electrical engineering and computer securities.

There are two critically important elements to the workforce training challenge of the aviation and manufacturing sectors of Peterborough and Kawartha Lakes.

1. The continuous improvement of technical side, which is, ensuring that workers not only enhance their general skills or skill sets, but also expand those skills to adapt to new technologies, equipment and processes.

2. Enhancing leadership training for the next generation of aviation and manufacturing management.

The objective of this training initiative is to provide specialized workplace skills and management training to the Aviation and Manufacturing Sectors in the Peterborough, Northhumberland and Kawartha Lakes region. The desired outcomes are long-term labour retention, increasing the skillset(s), and creating resiliency and competitiveness of the existing workforce within Aviation and Manufacturing Sectors.

Manufacturing and Agri-Business – Kawartha Lakes – Draft (VALUE – TBD)

The Manufacturing and Agri-food Sectors in the Peterborough and Kawartha Lakes has vast potential for growth with skilled labour being a limiting factor.

Mariposa Dairy- The Cheese Plant has moved from the farm to a wonderful state- of- the- art, modern, Global Food Safety FSSC 22000:2010 certified facility.

Mariposa Dairy's cheese products are presently being shipped all across Canada and the USA through Finica Food Specialties Ltd. in Canada and Atlanta in the USA. They have won numerous awards, both for the cheeses AND in recognition for innovation and excellence in the dairy itself! Many of the cheeses are certified both Kosher and Halal. Starting in 2011, their plain chevre was available as "Passover Approved" in the US market.

The Dairy achieved its HACCP certification in 2008. As it expanded, the Dairy chose to focus on a Global Certification. With a great deal of focus and intent, Mariposa Dairy achieved its Global Food Safety Certification FSSC 22000 in 2011. This certification allows Mariposa Dairy to approach international markets.

Armada Tool Works- Founded in 1972, Armada has progressed into a leading global source for the development and manufacture of automotive components and assemblies.

Kawartha Dairy- is a Canadian family owned and operated dairy based in Bobcaygeon, Ontario in the City of Kawartha Lakes. The company was founded in 1937 and it remains family owned. Kawartha Dairy produces a line of milk and cream products, which are sold both wholesale and in its own retail stores. While Kawartha Dairy milk and cream are available primarily in its home area of Central Ontario, its well-known brand of ice cream can be found throughout Ontario. The company also operates ten of its own retail stores in the province.

Fleming College School of Trades and Technology - The Kawartha Trades and Technology Centre, through a unique partnership with education and industry, teaches and trains students from regional secondary schools, Fleming College and regional industry. The facility provides new space and equipment for training in areas such as carpentry, welding, plumbing, manufacturing, computer and electrical engineering and computer securities.

There are two critically important elements to the workforce training challenge of the Manufacturing and Agri-food Sectors of Peterborough and Kawartha Lakes.

1. The continuous improvement of technical side, which is, ensuring that workers not only enhance their general skills or skill sets, but also expand those skills to adapt to new technologies, equipment and processes.

2. Enhancing leadership training for the next generation of Manufacturing and Agri-food management.

The objective of this training initiative is to provide specialized workplace skills and management training to the Manufacturing and Agri-food Sectors in the Peterborough, and Kawartha Lakes region.

The desired outcomes are long-term labour retention, increasing the skillset(s), and creating resiliency and competitiveness of the existing workforce within Manufacturing and Agri-food Sectors.

This training initiative will identify several common training categories required by Aviation and Manufacturing companies and deliver training to all interested companies in Peterborough and Kawartha Lakes through a collaborative training model.

The training would allow:

1. Laid-off workers to train or up skill during periods of production slow-down.

2. Address certain identified recruitment challenges, as well as providing multiple types of training as indicated by employers in the sector.

3. Create pathways for current students in high school, college, university or adult learning to the local aviation sector.

4. Promote the betterment of individuals, families and community.
   The collaboration between the Ontario Ministry of Training, Colleges and Universities, Fleming College School of Trades and Technology and partner companies in the Manufacturing and Agri-food Sectors in the Peterborough and Kawartha Lakes will be a new and innovative approach to providing support to employers and employees affected by the economic challenges created by the local economy. The successful outcome of this training initiative will not only create a model to support the local economic region, but also will provide a model, which can be used to support other sectors in the future.

This training initiative will be developed and delivered in a collaborative partnership model Fleming College School of Trades and Technology as the lead organization and agreement-holder responsible for managing and distributing funds, acting as a coordinating body and ultimately accountable to the Ministry.

RISK CATEGORY

Select all that apply *(to check a box, double click; from drop-down menu, select "checked" under Default Value)*

☐ External Environment ☐ Internal Environment ☐ Financial ☐ Human Resources
☐ Information Technology ☐ Legal ☐ Operational ☐ Strategic ☐ N/A

RECOMMENDATION AND/OR MOTION *(i.e. Receive the update on Winter Enrolment for information. Refer the matter to Committee for further investigation. Approve the proposed xyz program of instruction.)*

It is recommended the Board of Governors of Sir Sandford Fleming College:

Receive the SkillsAdvance Ontario Pilot report for information.

SUPPORTING DOCUMENTATION

http://www.tcu.gov.on.ca/eng/eopg/programs/sao.html

SUBMISSION TO THE BOARD OF GOVERNORS

Agenda Item xx

Report Title: Fleming College Certificates Offered Through Ontario Learn
Report to: In-Camera Board Meeting Meeting Date: May 22, 2019
Requested Action: For Information
Prepared and Submitted by: Eva Rees and Brent Wootton

OVERVIEW / BACKGROUND

Fleming College's School of Flexible Delivery and Contract Training seeks to expand its offerings of E-Learning part time programs. Online/e-learning programming is an accessible modality to increase reach to our local communities and grow continuing education enrolment.

One way to accomplish this is through new Fleming certificates derived from offerings within the Ontario Learn (OL) consortium. Presently we are examining high demand candidate programs to put forward for Board approval as local College certificates in the upcoming months. This item is intended to provide the Board with information on the OL model and to address any questions the Board might have on this strategy

ANALYSIS / PROPOSED OPTIONS

The scope of analysis will depend on the nature of the issue but may include Legal Impact; Financial/HR Implications; Student Impact; Stakeholder Implications. Pros and Cons for each option should be identified as appropriate.

Ontario Learn (OL) is a consortium of Ontario's 24 publically funded Colleges, devoted to the development and delivery of high-quality, accessible online learning opportunities for learners.

Demographics:

- OL has served more than 900,000 students since its inception in 1995;
- 80,000 students registered for OL courses in 2018-19;
- 22% of OL students are from rural areas;
- 38% are between the ages of 20-29; and
- 45% are between the ages of 30-49.

There are presently more than 1500 shared online courses and 619 College partner programs available. OL offers flexibility to students with multiple intakes (14) each year. The consortium uses a shared inventory of courses (no duplication) shared contracts and services including one student portal and a 24/7/365 live help desk. The self-sustaining business model is based upon fees to registering Colleges, host Colleges and administration.

OL has an established governance with a Representative Board (one member per College), Executive Committee, and dedicated committees (including a Quality Assurance Committee). OL was incorporated in 2005 as a not-for-profit with agreed upon by-laws, policies and processes.

Fleming College currently offers 21 programs through OL of a total of 600 programs available at all colleges. Our plan is to pick up additional existing OL programs fully hosted by other colleges. Programs may be fully (most likely) or partially online.

Financial Analysis: OL activity represents a significant revenue stream for Fleming College:

In 2017-18 net revenue from tuition was $ 380,888 plus grant of $746,272 for a total of $1,127,160
In 2018-19 net revenue from tuition was $ 480,298 plus grant of $754,858 for a total of $1,235,156

The last time Fleming College requested Board of Governor approval to award a series of local certificates to expand our inventory in OL pick up certificates was in 2012. A financial analysis completed in 2014 showed a growth in OL revenue from 2011 to 2014. Over the 3 year period, net revenue to Fleming generated by OL activity from enrolments in courses not hosted by Fleming went from 462,046 (2011) to 894,436 (2014) in tuition and grant revenue. Although, across the OL system there had been increasing demand for online certificate programs, much of this increase could reasonably be contributed to this increased set of offerings.

Risk Analysis: Since many of the courses (comprising the program) will be hosted by another College member of the OL consortium, the quality oversight is indirect rather than direct. The Quality Matters™(QM) Rubric was introduced in 2016-17 which has strengthened the partnership quality assurance. Courses are reviewed within this formal QM process and those that do not meet the OL standard are flagged and the host College is notified and asked for a plan to address any deficiencies. If changes are not made, then OL removes the course from its catalogue.

Since the OL model is built on the premise that students can register for OL courses through the College of their choice, and since multiple Colleges offer the course, the number of cancelled courses is not as great as if the course was offered by only one College. However, the possibility remains that courses are cancelled which can impact student satisfaction outside of our control.

Student Impact: The ability to pick up OL programs and offer them through Fleming provides students with additional learning opportunities in a flexible manner.

Target Launch date: TBD
Credential: Fleming College Local Certificate

RISK CATEGORY

Select all that apply *(to check a box, double click; from drop-down menu, select "checked" under Default Value)*

☐ External Environment ☐ Internal Environment ☒ Financial ☐ Human Resources
☐ Information Technology ☐ Legal ☐ Operational ☐ Strategic ☐ N/A

RECOMMENDATION AND/OR MOTION *(i.e. Receive the update on Winter Enrolment for information. Refer the matter to Committee for further investigation. Approve the proposed xyz program of instruction.)*

It is recommended the Board of Governors of Sir Sandford Fleming College:

Receive this Preliminary Proposal for Fleming College "pickup" Certificates offered through Ontario Learn.

SUPPORTING DOCUMENTATION

PRESIDENT'S REPORT

Public Board Meeting – Wednesday, May 22, 2019 **Agenda Item**

The following is a summary of key updates of the President to the Board of Governors since the April 2019 Board meeting.

College System Update

The government of Ontario continues to evolve the new funding model that is intended for colleges in Ontario. While it is expected to include 10 Key Performance Indicators, there is still much to be done to determine the approach to achieve these indicators over the next 5 year period. Most importantly, funding will shift from the current corridor model to a model where 60% of our allocation will be based on a specialized funding model where centres of excellence will be rewarded. The new 5 year strategic plan positions Fleming very well for the SMA3 process. Staff are investigating all possible approaches for consideration and working closely with our provincial colleagues.

In the interim, reporting on the SMA 2 plan from 2017/18 is required and it included under a separate cover of the Board material. It is not expected that this will be the basis for any funding decisions, at this time.

Government Relations

A call between the President and the Chief of Staff, Ministry of Training, Colleges and Universities occurred on Friday May 14, 2019. The planned recruitment process for new Directors was discussed along with the approach that has been taken to renew the by laws of Fleming College. The Chief and her colleague were very supportive of our approach, particularly as it relates to best practices and a renewed skills matrix. The Chief also agreed to receive a presentation regarding the new strategic plan for Fleming in the coming weeks, once finalized by the Board of Directors.

Fleming College has taken a lead role to present an approach for delivering employment services for the Peterborough and surrounding areas. This is in response to the Government's direction to reduce and consolidate the number of employment services across the province that are offered by colleges and funding by the province. The Vice President Academic Experience attended an information session on Wednesday, May 15, 2019 followed by the delivery of a presentation to a government panel that outlined the role that Fleming could play both as a service manager and a service provider. It is expected that 3 – 4 demonstration projects will be approved later this summer.

Fleming Strategy

The final validation sessions regarding the strategic plan have concluded with a well attended and successful breakfast meeting of industry partners, local businesses and alumni on May 14, 2019. The plan received very strong support from all of those in attendance. This dialogue will continue throughout the execution of the plan, in the ensuing years.

Other validation processes have occurred with the Steering Committee, Indigenous experts, staff and community leaders.

The strategy has been finalized for Board approval; it has incorporated much of the feedback from the last Board meeting when it was approved in principle. Other input was considered and validated as well. A launch of the strategic plan that will be aligned with the June Board meeting is being planned and will be a

community event that welcomes all to participate with Fleming. Mandate letters for the senior teams are being finalized as is a master action plan. The communications component will be the focus of the Board presentation during the May 2019 meeting.

Fleming Operations

Voluntary Exit Option Program has concluded according to the timelines that were approved by the Board. There were 38 applicants and all were approved. Hiring for replacements will follow a rigorous process that will involve the President and her senior team. It will be essential that renewal of roles and effective organizational constructs are integral to any decisions for recruitment.

Recruitment for the Dean of Arts, Dean of Business and Dean of Technology will ensue shortly. The recruitment for the new Vice President Corporate Services will be initiated in late June 2019.

The Maker Space planning is well underway. Planning to investigate a further presence in downtown Peterborough is also underway, along with the consideration of a master plan for Fleming that addresses housing, transportation and student service supports.

In Our Community

Many of these events are highlighted on social media (my Twitter feed is @Fleming_Pres) but highlights include:

- Thank you @mikeskinnerptbo. We look forward to working together.

- This morning we were pleased to welcome guests from Chihuahua @utch_oficial and Saltillo @ITSaltillo on their way to @CollegeCan conference. Looking forward to exploring new opportunities to work together.@flemingcollege

- Welcome to Canada! Congratulations on your courageous decision to study abroad, and good luck on your journey.

- Started my morning at Frost Campus to welcome guidance counsellors to our beautiful campus for the College Dialogue 2019 event. Thank you for having me, and I wish you a successful day as you hear from our Ontario college partners. @FlemingCollege

- @Fleming_Pres welcomes guidance counsellors to Fleming's Frost Campus this morning for the College Dialogues event, where they will meet reps from Ontario colleges

- This is an exciting move for the College in preparation of the launch of a new Strategic Plan to follow in June 2019. #newFleming

- We all have bystander obligations. Sexual violence on campus is an 'all hands on deck' job for our entire community. Together, we can change the way the story goes. @PtboThisWeek @FlemingCollege

- While we are making strides in equity and diversity in higher ed, we have a lot of work to do. Global perspective is increasingly important for the labour market and our society, and should be front and centre. Thank you @kensteele, another great #TenWithKen. #newFleming

- Congratulations Kayla on your Bronze Medal at #SkillsON2019. Thank you for showcasing your culinary skills and proudly representing @FlemingCollege.

- Congratulations Mark on winning two medals at #SkillsON2019. You are a fabulous ambassador for @FlemingCollege and the skilled trades.

- Truly fabulous and emotional work done by our Graphic Design – Visual Communications students for @UnitedWayPtbo. We are very proud of the designs you created to raise awareness of homelessness in #Ptbo. #LocalLove #community

Fleming in the News

When it comes to sexual violence on campus, we must do better
Mykawartha.com | April 21, 2019

We need more nurses in Peterborough, and this new program is the answer
Peterborough Examiner | April 23, 2019

Fleming College student promoting 4-H provincially as ambassador
Peterborough Examiner | April 23, 2019

Peterborough police and volunteers raise more than $32,000 during Easter Tolls for Special Olympics
Kawarthanow.com | April 23, 2019

Trent, Fleming join effort to train internationally educated nurses
Academica.ca | April 25, 2019

United Way CKL will unveil Edwin Binney Community Garden at fundraiser
Mykawartha.com | April 26, 2019

Garden show blooms in Peterborough
Peterborough Examiner | April 27, 2019

Marsh at Colborne and Hwy 35 formed while development stalled
Lindsay Advocate | April 28, 2019

Fleming College expanding Continuing Education programming
Peterborough Examiner | May 1, 2019

Fleming College offers two free pre-apprenticeship programs
Academica.ca | May 2, 2019

3D printers, other fresh tech coming to downtown Peterborough makerspace
Mykawartha.com | May 2, 2019

Trent Housing Colloquium to focus on pairing senior citizens with students in Peterborough
Global News | May 2, 2019

“Tech it Out” Grade 7 Skilled Trades Camp
Global News | May 3, 2019

Dupret named VP, student experience with Fleming College

Haliburton Echo | May 7, 2019

JA career forum Wednesday at Fleming College
Peterborough Examiner | May 7, 2019

Most Peterborough Police officers are white men, survey finds
Peterborough Examiner | May 7, 2019

Students building habitat boxes at St. Joseph School in Douro
Peterborough Examiner | May 9, 2019

Fleming College Graphic Design – Visual Communication students present culminating project to United Way Peterborough and District
Educationnewscanada.com | May 10, 2019