

Fanshawe College

FIRST: Fanshawe Innovation, Research, Scholarship, Teaching

Documentation (Approvals etc...)

Advanced Ergonomic Studies

2014

Ergonomist - Business Plan

Fanshawe College

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BUSINESS PLAN FOR NEW PROGRAMS

Business plans must be submitted to the Academic Program Planning Sub-committee (APPS) by **December 1st**, for programs to be implemented in the fall of the following academic year. APPS will forward the business plans to the Board of Governors, Credential Validation Service, and the Ministry for approval.

The Business Plan will be developed using this template, and in consultation with a Curriculum Consultant from the Centre for Academic Excellence (CAE). All areas of this template and all Appendices must be completed.

1.0 Program Specifications:

Title of Proposed Program:	Ergonomist Graduate Certificate
MTCU program code (if it exists):	
Credential to be Awarded:	<input type="checkbox"/> Local Board Approved Certificate <input type="checkbox"/> Ontario College Certificate <input type="checkbox"/> Ontario College Diploma <input type="checkbox"/> Ontario College Advanced Diploma <input checked="" type="checkbox"/> Ontario College Graduate Certificate <input type="checkbox"/> Degree
Intake(s):	<input checked="" type="checkbox"/> Fall <input type="checkbox"/> Winter <input type="checkbox"/> Spring
Year of First Intake:	2015
No. of Students in First Intake:	35
Length of Program:	Number of semesters: 2.5
	Duration of each semester (in weeks): 14-14-8
	Total program hours:790
	What Academic Calendar will be used? Standard
	Will it be a co-op program? No Experiential co-op (required to graduate) <input type="checkbox"/> Mandatory co-op (not required to graduate but fee is mandatory) <input type="checkbox"/> Optional co-op (not required and fee only charged if students opt in)
Method of Delivery:	<input type="checkbox"/> Face to face <input checked="" type="checkbox"/> Hybrid <input type="checkbox"/> 100% Online <input type="checkbox"/> Weekend College <input type="checkbox"/> Other
	<input type="checkbox"/>

2.0 Executive Summary

Working in conjunction with the Canadian College for the Certification of Professional Ergonomists (CCCPE), Fanshawe is proposing a one year (36 week) graduate certificate program that will consist of online work, lectures, laboratory work, and a field placement. Upon completion of the program, graduates will have the hour's necessary to gain them the title of Associate Ergonomist (AE) as required and recognized by the CCCPE.

In this course, students will be given the opportunity to develop and grow their fundamental understanding of ergonomics. Current technologies and techniques will be examined in addition to application of theoretical principles to worker-workspace interactions. Once all course work has been completed, students will take part in an eight week field placement where they will complete a research project.

A one year course of this nature is directly in line with the college's vision to provide its students with an opportunity to succeed in an environment that will promote in-class and hands-on learning. Research projects produced by the students, during their field placement, will also strengthen the college's initiative to expand the areas of research in which it is involved with.

Per the CCCPE, there is no program like this in the country. Industrial based companies, health care facilities and the aging work force will be areas of assessment and employment for future graduates. As indicated, a diverse area in which graduates will be able to seek employment strengthens the college's ties to the business partners in the community and beyond.

Individuals with degrees in areas such as kinesiology, engineering, health science, and many others will be well suited for this program. The prerequisites that every applicant must have, at a minimum, one of each of the following courses: anatomy, physiology, statistics, biomechanics (or equivalent), and ergonomics. If applicants wish to take this program, but are lacking the prerequisites, Fanshawe College will be offering bridging options through a distance education format.

Resources required are as follows: classroom(s), computers, and ergonomic tools and software.

3.0 **Academic Programming and Quality**

Score: ___/25

New programs will be developed by the School/Faculty responsible for the program in consultation with the other affected enabling/partner divisions/departments including, but not limited to, Language and Liberal Studies, Co-operative Education, Continuing Education, departments responsible for service delivery and support of the program, etc. ****See Appendix H - Form 1 Internal Stakeholder Consultation Report and Form 2 Contact List for Consultation Report for the detailed list****

Appendix H to follow

**ONTARIO COLLEGES OF APPLIED ARTS AND TECHNOLOGY
CREDENTIALS VALIDATION SERVICE
APPENDIX B - PROGRAM DESCRIPTION**

PROGRAM DESCRIPTION:

This program will provide students with opportunities to expand and strengthen their fundamental understanding of the science of ergonomics. Both in the lab and in the classroom, students will learn to use analytical tools for quantitative and qualitative assessments of employees' job related tasks in the workplace. Current technologies and techniques will be examined in addition to application of theoretical principles to worker-workspace interactions. Additional topics of study include: the legislative and regulatory environment, the role of the Workplace Safety and Insurance Board, and the financial impacts of injury.

VOCATIONAL PROGRAM LEARNING OUTCOMES:

The graduate has reliably demonstrated the ability to:

1. Assess the mechanisms and causes of injury in the workplace.
2. Discriminate between elements of an ergonomically sound and unsound workspace.
3. Evaluate ergonomic concerns in a variety of workplace settings.
4. Use current and past research to guide study design, evaluation, and/or proposed intervention.
5. Communicate across functional teams and levels of management.
6. Assess worker-workspace interactions using appropriate qualitative and quantitative techniques.
7. Utilize current technologies to assess workplace and worker functionality.
8. Synthesize information about proper work break patterns and exercises and communicate effectively to a wide variety of stakeholders with varying education levels and backgrounds.
9. Recommend appropriate assistive tools and workstation modifications to reduce the potential for workplace injury.
10. Demonstrate an understanding of how human perception and information processing influence an individual's performance at work.
11. Effectively assess and communicate with those involved in the process of having an individual safely return to work post injury.
12. Apply anthropometrical tables and calculations when designing equipment.
13. Evaluate various software programs to determine effectiveness of human-computer interactions.
14. Design work studies and user juries and have the ability to quantitatively assess their results and draw valid conclusions.
15. Analyze the cost effectiveness of ergonomic methods and their value in mitigating the financial impacts of injuries in the workplace.
16. Formulate effective responses to the knowledge bias and resistance factors that ergonomists frequently encounter.
17. Prepare succinct technical reports that include conclusions and recommendations which are supported by the analysis of data and the relevant scientific literature.

ADMISSION REQUIREMENTS:

University Degree, in a related discipline (as determined by the College), including, but not limited to:

- Kinesiology
- Health Sciences
- Nursing
- Engineering

AND, where required (as identified by the College)

Successful completion of undergraduate or qualifying college-level courses in:

- Anatomy
- Physiology
- Biomechanics
- Statistics
- Ergonomics
- Or other course work as required

3.02 Curriculum

- a) Complete **Appendix F: Program of Instruction** to outline the sequence of courses, credits, general education courses and materials fees, if required.

Consultation: affected Academic Schools, Co-op, CAE

LEVEL 1		20XX F			
Crs. No.	Course Name	Credits	Elective	Hours	Material Fee
ERGO XXXX	Professional Development			30	
ERGO XXXX	Ergonomics Theory and Practice (T)			45	
ERGO XXXX	Ergonomics Theory and Practice (L)			45	
ERGO XXXX	Ergonomics and Workplace Legislation			30	
ERGO XXXX	Research Methods and Statistics			60	
ERGO XXXX	Human-Computer Interactions			30	
Totals:				240	

LEVEL 2		20XX W			
Crs. No.	Course Name	Credits	Elective	Hours	Material Fee
ERGO XXXX	Ergonomics and its Deficiencies			45	
ERGO XXXX	Instrumentation (T)			45	
ERGO XXXX	Instrumentation (L)			45	
ERGO XXXX	Safety in the Workplace			60	
ERGO XXXX	Human Factors and Design (T)			45	
ERGO XXXX	Human Factors and Design (L)			10	
Totals:				250	

T = Theory; L = Laboratory

LEVEL 3		20XX F			
Crs. No.	Course Name	Credits	Elective	Hours	Material Fee
ERGO XXXX	Field Placement			300	
Totals:				300	

3.03 Curriculum Design and Delivery

- Indicate how the program meets the learning outcomes.
- Include reasons for choice of delivery methods including work experience (if appropriate).
- Indicate how delivery methods are appropriate to program and/or target populations.
- Indicate where and how *existing* courses are used in this new program.
- Indicate where and how internationalization, research and e-learning are included in the program.
- Complete **Appendix A: Form 3 Program Outcomes- Curriculum Map VLO EES**
Consultation: CAE

The proposed one-year ergonomist graduate certificate program meet all of the learning outcomes in several ways. First, and foremost, every hour the student will spend either in the classroom, laboratory, or in the field will count towards achieving the title of Associate Ergonomist (AE) as recognized by the Canadian College for the Certification of Professional Ergonomists (CCCPE). Secondly, each course will be designed to provide students with opportunities to expand and strengthen their fundamental understanding of the science of ergonomics. Lastly, students will be exposed to real-life ergonomic situations in the workplace through the 8-week field placement, providing them with invaluable experiences in effective communication strategies, application of appropriate assessment techniques, and the methods in how quantified assessments are properly reported out to the respective parties. Together, this program is well suited to achieve all of the purposed learning outcomes identified in Appendix A – Form 3.

From an hour allocation standpoint, students will be exposed to 100 hours in the laboratory, 390 hours in the classroom, and 280 hours in the field. The reason why the hours are divided in this manner is because the hours offered by Fanshawe match exactly to those required by the CCCPE in order to achieve the AE status

As required by the CCCPE, the target audience for this one-year program will be students who have successfully completed an undergraduate degree (please reference section 3.01 – Appendix B for further details) with experiences in the laboratory and classroom. Therefore, the methods of delivery for this program are suitable to those who are enrolled.

The graduate certificate is a unique program, new to Fanshawe College as such there are no existing courses that will be used in the Ergonomist curriculum.

The need to assess and mitigate physiological stressors of the workplace is an international issue. It is expected that 10% of the students in this program will be international. Research is imbedded in the program with both a mandatory research course and a compulsory capstone project being included in the curriculum. Although the numerous psychomotor performance requirements of discipline require significant face to face to face time in both laboratory and experiential learning environments, the pre-requisite requirement of an undergraduate degree makes hybrid delivery an excellent option for this program.

3.04 Vocational Program Learning Outcomes

- a) Complete *Appendix A: Form 1 - Vocational Program Outcomes.*
Consultation: CAE

3.05 Employability Skills Learning Outcomes

- a) Complete *Appendix A: Form 2 - Essential Employability Skills Outcomes.*
Consultation: CAE

3.06 Ministry Form for Weighting Purposes

- a) Complete **Appendix E: Program Delivery Information (PDI) Form to Calculate Program Funding Parameters.**
Consultation: CAE

Instructional Settings*	Semester/Level			
	1	2	3	Total
Classroom instruction	195	195		390
Laboratory/workshop/fieldwork	45	55		100
Field placement/work placement ⁱ ** <input checked="" type="checkbox"/> Mandatory <input type="checkbox"/> Optional			300	300
TOTAL	240	250	300	790

3.07 Relationship to Professional or Licensing Bodies

- a) Complete **Appendix D: Regulatory Status Form**
Consultation: CAE



Ontario College Quality Assurance Service

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

VOLUNTARY REQUIREMENTS

Colleges may choose to have a program accredited or recognized by a voluntary membership organization or association. Graduate eligibility for association recognition or adherence to standards imposed by the body is **not a requirement** for program funding approval by the Ministry of Training, Colleges and Universities.

Recognition of the program by a voluntary professional body:

Is being sought: Name of professional body: _____

The college is working toward recognition.
 Status of application and expected date of achievement: _____

Recognition has been received.
 Type of recognition (e.g. accreditation, graduates eligible to write membership exams, etc.):

The President of the Canadian College for the Certification of Professional Ergonomists (CCCPE) has indicated that graduates will be eligible for designation as Associate Ergonomists (AE). See email attached in letters of support.

★ Please submit an acknowledgement and/or evidence from the voluntary association that recognition has been received.

Recognition is not being sought (*please note there may be titling implications for programs that are not compliant in an area where other existing programs are*)

3.08 Course Descriptions

- a) Complete *Appendix C: Program Curriculum Consultation: CAE*

Key Questions/perspectives in this Section that need to be addressed for APPS:

- 1) What method(s) of delivery are you planning?
Hybrid delivery for theoretical components of the curriculum
- 2) Explain your deliberations regarding the use of alternative delivery.
Given as the pre-requisite for this graduate certificate program is an undergraduate degree the hybrid model students will be well suited to successfully manage in the hybrid environment. A total on line delivery is not recommended given the significant psychomotor performance elements of the curriculum.
- 3) Explain the role experiential learning will play as part of the chosen curriculum.
Both simulated (lab) and field experience will make up a significant aspect (>50%) of the program curriculum
- 4) What opportunities will there be for developing learning pathways?
This program is providing a pathway for underemployed or non-employed university graduates to gain a sought after skill set. University programs are interested in seeing us make this pathway available to their graduates (see letters of support)
- 5) Explain how research and innovation will be introduced into the curriculum.
Research is imbedded in the program with both a mandatory research course and a compulsory capstone project being included in the curriculum.
- 6) Describe how you will comply with any regulatory or accreditation requirements.
The President of the Canadian College for the Certification of Professional Ergonomists (CCCPE) was consulted initially during Stage Gate one and has also participated in the external focus group for this program. The CCCPE has indicated that graduates will be eligible for designation as Associate Ergonomists (AE). See email attached in letters of support.

4.0 Fit of Program

Score: ___/25

4.01 Institutional Fit

- a) How does the program fit with the College's institutional mandate, strategic plan and priorities?
- b) How does the program align with local, regional or provincial economic development activities and priorities?

Consultation: Strategy & Planning, Review of Strategic Plan, Regional Development Plan

The program fits with Fanshawe College's mandate, strategic plan and priorities as it proposes to offer education and training in a field that is currently not being offered within the Ontario College system. This will contribute to growing enrolment, and will provide students with premier learning and career preparation opportunities. This program will continue to foster Fanshawe's reputation as being progressive, current and leading edge as it represents an area of specialization that is currently gaining recognition as an employable vocation that requires focused training, and experiential lab-based experiences.

4.02 Similarity of Program

- a) How is the program similar to or different from existing programs at the College?
This is a unique program, not offered at Fanshawe, or presently at any other institution in Canada.
- b) What impact will this program have on existing programs at the College?
None

Does the proposed program provide additional breadth to our offerings, or does it add specific disciplinary depth? Adds to our offerings in FHP, and adds depth to SoPS programming as well.

- c) Are there similar programs being offered provincially to the one being proposed?

No

Nationally?

No

(Include location of programs and a brief description of these programs.)

- d) What makes this program unique from existing programs that are similar?

NA

Consultation: CAE, Strategy & Planning

4.03 Pathways between Proposed Program and Other Post-Secondary Programs

- a) Indicate what program pathways (e.g., articulations/transfers) are anticipated or under negotiation between this program and other post-secondary programs (internal and external)?

Consultation: CAE

Several universities participated in our EFG and indicated that there graduates would be “beating the doors down” for this program.

Key Questions/perspectives in this Section that need to be addressed for APPS:

- 1) Please identify any new partnerships that are part of this opportunity.
Fostering recruitment relationships with universality kinesiology programs.
- 2) What, if any, alliances are possible to reduce costs, increase speed to market and increase market coverage?
See above.
- 3) What would be the competitive advantage of the program? (in your response, please include profiles of key competitors such as other colleges, universities, private institutions). How do they differentiate themselves?
As this is a unique program, this offering would strengthen our competitive advantage and more importantly, fill an existing gap in this industry providing a much needed service to enhance the safety of workers.

5.0 Demand for Program

Score: ___/25

5.01 Student Demand (from Stage Gate 1 - may be enhanced from research)

- a) Provide evidence of student demand (include how strength of demand has been assessed and data sources, including OCAS, used to assess demand).
- b) Indicate which student populations are most likely to be attracted to the program. Include assessment of whether this program will draw students away from existing college programs or be complementary to existing programs.

Consultation: Registrar's Office, Recruitment, International, Strategy & Planning

Based on feedback from two university professors, a university-level counselor, and three certified CCPE (Canadian Certified Professional Ergonomist) professionals, the Ergonomist field is emerging, yet training is lacking at the post-secondary level. Currently, Guelph University offers workshops that reflect this area of study however formal credentials cannot be obtained. Western, Nipissing, Algoma, Humber College and University of Toronto also offer components of the proposed Ergonomics program, however none of these institutions ascribe a year of specialized training with this area of focus as this proposed program does.

5.02 Employment Demand *(from Stage Gate 1 - may be enhanced from research)*

- a) Provide evidence of demand for this type of graduate from industry. Include trend data, feedback from and support of the College/Program Advisory Committee, and other data sources. Provide evidence of industry support for this program (Letters of support are ideal)

Key Questions/perspectives in this Section that need to be addressed for APPS:

- 1) Please identify your student target (Persona - Internal or External) and both quantify and qualify their needs.
- 2) How will this program help achieve the College's enrolment growth strategy?
- 3) What strategic benefit will this program provide?
- 4) How will this program meet the College mandate objective to "meet the needs of our various communities for educated and trained workers/citizens?"

Injuries, whether repetitive or acute-based, are a part of every workplace environment. Educating students and providing them with the knowledge and skills of how to identify, assess qualitatively, and redesign potentially harmful job hazards is an endeavor that is sustainable to the point that all injuries in the workplace are eliminated.

In preliminary research conducted, which explored the demand for graduates with this training a common theme that "there is concern that while HF/E research may be meeting the needs of researchers, it may not have fully met the needs of practitioners nor made a big impact on practice in the 'real world'." (Chung et al., 2011) emerged. The need for graduates in this field with hands-on, practical skills was further confirmed by Canadian Occupational Standards, where it is published that Canadian-wide there are only 233 professionals certified as CCPE or Associate Ergonomist. (<http://www.cos-mag.com>).

6.0 Feasibility of Program

Score: ___/25

6.01 Physical Resources

- a) **Technology requirements** - include capital equipment required for start-up and full implementation of the program; type of equipment and infrastructure enhancements needed to operationalize the equipment (electrical upgrade, water, eye wash station, fume hood, etc.) and results of consultations and discussions regarding technology requirements.
Consultation: Faculty, Chair, Program/Ops Manager, HS&S, Facilities Management

See chart below.

- b) **Space requirements** - include special space requirements such as lab or designated space; required renovations or installations; and results of consultations and discussions regarding space requirements and location of program.
Consultation: Facilities Management, Timetabling/Scheduling

This program will require a lab space of approximately 1250- 1500 sq. ft. This proposed lab could be utilized by the FHP program as well as serve to house the newly proposed fitness graduate certificate.

- c) **Computing requirements** - include hardware and software required for start-up and full implementation of the program; cost of hardware/software and results of consultations and discussions regarding technology requirements.
Consultation: Information Technology Services.

See chart below.

Key Questions/perspectives in this Sub-Section that need to be addressed for APPS:

- 1) Please estimate the amount of capital investment required to implement this program that is beyond your existing capital allotment. If this exceeds \$1.5 Million, also indicate if you have identified the source of these funds.

Estimated capital required for start-up \$35,000 (see chart below for details)

2) Identify size, type and attributes of classroom and/or dedicated labs

Lab as indicated above, equipped as per chart below.

3) Identify special lab amenities/attributes (functional requirements noted in 6.01a that impact 6.01b)

See chart below

4) Will the program require additional space (offices, dedicated academic space, etc.)?

No.

5) What are the implications for existing IT architecture given program size, delivery format and computing requirements?

See chart below.

6) What are the software requirements (include Connect and program fees)?

See chart below.

7) What are the software licensing fees (one time and annual)?

See chart below.

8) Is there a requirement to purchase enabling technologies (clickers, smart boards, etc.)?

No

9) Can the proposed hardware and software run on the College's networks?

To be verified with IT

10) What are the on-line registration, e-learning and FOL requirements?

Online registration as per registrar's office practice. Standard Hybrid and FOL requirements

11) Are there specific IT staff support needs for the program?

See chart below.

**In terms of pieces of equipment, the rationale was there should be more pieces of equipment than required to account for times when things are broken or off being re-certified.

Equipment/Software	Number	Estimated Cost	Applicable Program(s) - Rationale
Computers	15	Free - if already in school's inventory	All - Computers are an essential piece of this program. Students will be proficient in a wide variety of programs after this program. **Computers must have the necessary power to be able to run all applicable software programs.
JACK Human Modelling Software	Site License	\$3200 initial fee and price is reduced to approximately \$2600 per year. Unless, Fanshawe College already has a Siemens Suite Package - Cost may already be accounted for.	Multiple - JACK Human Modelling Software is an essential computer program for any ergonomist. Anthropometrical scaling, joint shear and compressive forces, and design/assessment can all be completed within this program.
HandPak Software	Site License	Free	Multiple - Site license for an academic institution is currently free.

3D Static Software	Site License	\$1000	Multiple - Is used to calculate joint loading and energy expenditure which will allow for the quantitative assessment of any job.
Hand Dynamometer	10	10 x \$300 = \$3,000	Part of the ergonomist's toolbox.
Pinch Grip Dynamometer	10	10 x \$200 = \$2,000	Part of the ergonomist's toolbox.

Equipment/Software	Number	Estimated Cost	Applicable Program(s) - Rationale
EMG System (LabVIEW software, electrodes, EMG software, computer, and amp)	1	\$12,000	Instrumentation - Students will learn to analyze muscle fatigue through the electrical changes in muscle activation. EMG is essential for jobs that can not easily be assessed with the other tools. This piece of equipment will also be a good segue into research.
Mark 10 (M3-500) Force Gauge	10	10 x \$800 = \$8,000	Multiple - This force gauge is able to record in real time the force vs. time output that an individual is generating. As an output, students will be able to analyse peak and continuous force exertion.
Mark 10 (M3-500) Force Gauge - Software	1	\$500	Software is required to read the continuous output produced by the M3-500 handheld force gauge.
Mark 10 (MG-200)	10	10 x \$675 = \$6,750	Multiple - Handheld force gauge that gives peak and sustained effort for push and pull tasks.
Stop Watch	10	10 x \$10 = \$100	Part of the ergonomist's toolbox.
Tape Measure - Fabric	10	10 x \$4.00 = \$40	Part of the ergonomist's toolbox.
Tape Measure - Standard	10	10 x \$10 = \$100	Part of the ergonomist's toolbox.

Equipment/Software	Number	Estimated Cost	Applicable Program(s) - Rationale
Handheld Camera (with video)	4	4 x \$200 = \$800	Multiple - If students don't have a cell phone with a camera, they will be able to use the camera to document the job they are investigating.
Handheld Light Meter	2	2 x \$300 = \$600	Multiple - Students will be introduced to doing lighting assessments.

Miscellaneous (clipboards, spring scales, tie wraps, various clamps, measuring wheels, etc.)	Multiple	\$1000	Part of the ergonomist's toolbox.
Minimum - 3 different job settings (automotive, lab technician, nursing) mocked up in lab (with equipment)	3 work settings	Dependent on what the school already has available to it - hopefully, cost = \$0	Integral to exposing students to various work settings in a controlled environment prior to any real life situations.

Total Estimated capital cost required for start up = \$35,000

Total annual software licensing fees = \$4,200

6.02 Learning Resources

- a) Include collections and/or on-line resources required.

Consultation: Library.

Program development team member has meet with Library staff and are in the process of determining resources required to support this program.

6.03 Human Resources

- a) Include staffing plan for program, up to and including full implementation.

Consultation: Human Resources, OD&L, other Schools.

This program will require one full time staff member with the remainder of the teaching hours being delivered by PT / PL.

Key Questions/perspectives in this Sub-Section that need to be addressed for APPS:

- 1) Estimate the staffing requirements that are above your existing HR complement.
One full time staff complement
- 2) Would there be any changes to your current staffing arrangements in order to implement this new program?
See above
- 3) Would there be any additional training needs?
Need to support staff to obtain CCCPE credentials

6.04 Student Services/Learning Experiences

- a) Connections to Centre for Academic Excellence (CAE)
This program was developed in consultation with numerous curriculum consultants from the CAE
- b) Connections to Continuing Education.
None
- c) Connections to International Education.
This program is viewed as an attractive option for international students will work with agents to promote this program.
- d) Connections to Centre for Research and Innovation.
Support with research course as well as capstone project
- e) Other Learner / Student Success Services as required
Given the pre-requisite requirements it is not expected that students will require significant support from these areas.
Consultation: as listed above, expand if required for your program proposal

6.05 Marketing Plan

- a) Outline marketing strategies that will assist in reaching the appropriate student populations for this program.

Consultation: Reputation and Brand Management.

Program to be included in SoPS marketing plan for the fall 2014 launch

6.06 Multi-Year Enrolment Projections (Headcount)

Consultation: Registrar's Office.

	2014/15	2015/16	2016/17	2017/18	Ongoing
Year One	35	35	35	35	35
Year Two					
Year Three					
Year Four					
Number of Graduates					
Total Enrolment	35	35	35	35	35

6.07 Budget for Program - (multi-year)

- a) Complete ***Appendix G: Multi-Year Budget Projections with NPV***

Consultation: Financial Planning.

Key Questions/perspectives in this Sub-Section that need to be addressed for APPS:

- 1) Please quantify any estimated spending requirements that are above your existing budget.
- 2) Please outline any budgetary assumptions
- 3) What was the outcome of your funding calculations?

*** (please use the Pro Forma analysis that includes the Net Present Value analysis) ***

See attached.

6.08 Tuition Fees

Consultation: Registrar's Office, Financial Planning.

<ul style="list-style-type: none">Proposed annual tuition fee: \$ 4925.50Fees: Regular Yes _____ No <u> X </u>Deregulated Yes <u> X </u> No _____What are other colleges charging for similar programs? NA

6.09 Start Up Costs

a) What startup costs are anticipated for this program, such as one time marketing costs, capital requirements and new lab and/or equipment (connect to 6.01a-c)? From where are these funds being drawn?

See 6.01

6.10 Allocation of Resources

a) Are there alternative sources of funding for this program (*e.g.*, is a program being cancelled)?

No.

7.0 Consultation Report

Include results of all appropriate consultations regarding development and/or implementation of this program on *Appendix H: Form 1 Internal Stakeholder Consultation Report and Form 2 Contact List for Consultation Report*

Submitted by: _____

Date: _____

Signature of Dean



Ergonomist Program Attachments

Letters of Support

Appendix A Form 1
CVS Application

Appendix A Form 2
Essential Employability Skills

Appendix A Form 3
VLO and EES Mapping

Appendix C
Program Curriculum

Proforma Analysis

April 28, 2014

Mark Hunter
School of Public Safety, Chair
Fanshawe College
1001 Fanshawe College Blvd.,
London, Ontario, N5V 1W2

Ergonomist Graduate Certificate (proposed program), School of Public Safety

Please accept this letter of support from my organization for the proposed Ergonomist Graduate Certificate program. Our organization has actively participated in the External Focus Group Process and as such we endorse implementation of this program.

I am a Professor in the Department of Kinesiology and have been teaching university courses in Ergonomics for the past 22 years. I am also the owner of an Ergonomics consulting company that hires Canadian Ergonomists, mainly out of Kinesiology programs. Finally, I have recently been invited to join the Board of the Canadian College for the Certification of Professional Ergonomists (CCCPE).

Based on our CCCPE meetings in Toronto this past weekend, it is clear to me that many graduates, from university programs like Kinesiology, will not have the necessary educational requirements to even apply to be a Certified Ergonomist in Canada. The proposed program, described by Chris Oliver at the External Focus Group meeting on March 6, 2014, will be ideally positioned to attract individuals that have been working as Ergonomist and desire to achieve the additional training they need to reach their career goals. The program is specifically designed to address typical educational gaps (of which I saw many in the current batch of CCCPE applicants) and will greatly enhance the ergonomics proficiency of any student that enrolls.

Please feel free to contact me should you require any further information in regards to my endorsement of the proposed Ergonomist Graduate Certificate program.

Sincerely



Jim Potvin
Professor

James Arnold CCPE

April 14, 2014

Mark Hunter
School of Public Safety, Chair
Fanshawe College
1001 Fanshawe College Blvd., London, Ontario, N5V 1W2

Ergonomist Graduate Certificate (proposed program), School of Public Safety

Please accept this letter of support for the proposed Ergonomist Graduate Certificate program. I have actively participated in the External Focus Group Process and as such I endorse implementation of this program.

As a professional of Ergonomics and human factors, I value graduates who have the knowledge, skills and experiential experiences reflective of the current needs of our industry. I believe that graduating students from this proposed program would be desirable candidates for organizations in the field as a specialist or analyst in Ergonomics and Human Factors.

Please feel free to contact me should you require any further information in regards to my endorsement of the proposed Ergonomist Graduate Certificate program.

Sincerely,

A handwritten signature in black ink, appearing to read 'Jim Arnold', written in a cursive style.

James Arnold CCPE



Department of Kinesiology, Faculty of Human Kinetics

401 Sunset Avenue
Windsor, Ontario, Canada N9B 3P4
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April 9, 2014

TO: Mark Hunter
School of Public Safety, Chair
Fanshawe College
1001 Fanshawe College Blvd., London, Ontario, N5V 1W2
RE: Ergonomist Graduate Certificate (proposed program), School of Public Safety

Dear Mark:

Thank you very much for being given the opportunity to provide some feedback and lend support to the recently proposed Ergonomist Graduate Certificate Program at Fanshawe College. I am pleased that Fanshawe has moved ahead with a proposal for this novel and worthwhile program.

Although I was unable to attend the recent meeting on March 6th, 2014, I am generally supportive of the direction and sentiment of the focus group members. I had the opportunity to discuss at some length my thoughts related to the content of the program with Chris Oliver prior to the focus group and feel that the program addresses a need in the ergonomics industry. Consequently, I believe that it should attract and be of interest to students from a variety of backgrounds, including Kinesiology.

Please accept this letter of support from me, on behalf of the Department of Kinesiology at the University of Windsor, for the proposed Ergonomist Graduate Certificate program at Fanshawe College. It is likely that there would be some interest in the program from students that have graduated with a Kinesiology degree, who would like to specialize in ergonomics and are seeking certification through the CCPE.

If you have any questions regarding my support of this proposed program, please do not hesitate to contact me at your convenience.

Sincerely,

A handwritten signature in black ink, appearing to read 'David Andrews', followed by a horizontal line.

David Andrews, PhD
Professor
Research Leadership Chair
Department of Kinesiology
dandrews@uwindsor.ca
x2433

Hunter, Mark

From: president@cccpe.ca
Sent: Saturday, April 05, 2014 7:36 AM
To: Hunter, Mark
Cc: Henry, Brenda; 'gdmarsh@uwo.ca'; 'gbelfry@uwo.ca'; 'dandrews@uwindsor.ca'; 'jdickey@uwo.ca'; 'arnoldj@gdls.com'; 'president@cccpe.ca'; 'ctv@taylordergo.com'; 'mcnorgan@gdls.com'; 'potvinj@mcmaster.ca'; 'amarlee.jagoe@londonlife.com'; Oliver, Chris
Subject: Re: Ergonomics Graduate Certificate Program External Focus Group Minutes

Hello everyone,

I am responding to "all" with this comment because I believe it is something that is rather important to understand regarding the planned Fanshawe Ergonomics Program and the CCPE designation. The minutes don't reflect one of the comments I made during that discussion that I think is very important to keep in mind, regarding the CCPE certification that the CCCPE provides. I apologize for not articulating this comment more clearly during the meeting.

The issue to keep in mind is that this program will NOT provide any graduate with the CCPE designation, since one component of obtaining the CCPE designation is a professional practice component. Right now the least number of years of professional practice acceptable (AFTER completion of education) is 4 years, provided that one of those years is overseen by a mentor. So if someone is seeking to receive the CCPE designation, but hasn't yet got the full ergonomics-related education hours, they will get the AE (Associate Ergonomist) designation from this program as it is shaping up right now. This will then hopefully help them to get into the job market for ergonomics more easily, given that they have already achieved the entry level of the certification. They then have 5 years to obtain the CCPE designation using their AE.

I hope you don't mind me reiterating this point to the group, but I didn't see it well reflected in the minutes. If it is there and I missed it, I apologize. From the perspective of obtaining the CCPE however, this is a very important issue to keep in mind, lest there be any misunderstandings on the position of a graduating student.

Thanks for your indulgence....

Best Regards,
Linda

> Good Afternoon Everyone,
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>
> Sincerest thank you from Chris and myself for offering your very
> valuable time to participate in the Ergonomist Program focus group last month.
> Input from our community partners is an essential component of program
> development so we deeply appreciate your sharing of expertise.
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>
> The minutes from the meeting are attached for your review. Should you
> have any additional ideas, comments or resources that you feel would
> contribute to the development of this program, please feel free to
> send them to Chris or myself.

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>
> As a component of the next stage of development we are seeking Letters
> of Support that validate the need for graduates with the competencies
> & experiences that we discussed. I have attached a 'Letter of Support'
> template. You are more than welcome to use it as a guideline however,
> you are also more than welcome to create a version of your own. If you
> are able to submit a Letter of Support to me by April 30th, it would
> be deeply appreciated.

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>
> Thank you once again for your contribution to the development of the
> proposed Ergonomist program.

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>
> Sincerely,

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>
>
> Mark

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>
> Mark Hunter
> Interim Chair
>
> School of Public Safety
> 1001 Fanshawe College Blvd. London, ON N5Y 5R6 T 519.452.4430 x5043
> mhunter@fanshawec.ca<mailto:mhunter@fanshawec.ca>

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> [cid:image001.png@01CF4FE1.41EC39F0]

>
>
>

Hunter, Mark

From: mcnorgan@gdls.com
Sent: Friday, April 11, 2014 1:05 PM
To: Hunter, Mark
Cc: Oliver, Chris
Subject: Re: Ergonomics Graduate Certificate Program External Focus Group Minutes

Mark,

Sorry for delay in my response. I am about to go on vacation for 2 weeks and I have been working to ensure I am on track with current tasks.

The focus group was very informative and I enjoyed the opportunity to participate.

With regard to a letter of support. I am not sure I can provide one as a representative of the General Dynamics Corporation. My role at GDLS-C is that of a "specialist" in the Human Factors/Ergonomics field and comes without authority in the areas of corporate sponsorship, employee recruitment and candidate selection. Providing you a letter of support under a GDLS-C banner could be offering a false sense of corporate support as I cannot back the letter of support with future employer/employment actions.

While I am in 100% agreement with the proposed course direction and concepts put forth, this support is from my standing as a practitioner and not as an employee, employer or corporate partner. If it is acceptable to submit a letter of support as an individual, "John Q. CCPE", then I would be more than happy to pen to paper.

All the best,

Paul McNorgan,
Email: mcnorgan@gdls.com

ONTARIO COLLEGES OF APPLIED ARTS AND TECHNOLOGY
CREDENTIALS VALIDATION SERVICE
APPLICATION FOR PROGRAM VALIDATION

This proposal will be sent to MTCU for Approval for Funding _____ Yes _____ No

1. College: Fanshawe College
2. College contact person responsible for this proposal: Name: Mark Hunter Title: Interim Chair, School Of Public Safety Telephone: 519-452-4430 ext 5043 Electronic mail: mhunter@fanshawec.ca
3. Proposed Program Title: Ergonomist Graduate Program
4. Proposed Credential: (please indicate below) Local Board Approved Certificate <input type="checkbox"/> Ontario College Certificate Ontario College Diploma <input type="checkbox"/> Ontario College Advanced Diploma <input type="checkbox"/> Ontario College Graduate Certificate X
5. Proposed Program Outcomes: Please complete and attach the two Program Maps (Appendix A - Form 1 and Form 2)
6. Proposed Program Description: Please complete and attach the Program Description Form (Appendix B)
7. Proposed Program Curriculum: Please complete and attach the Program Curriculum Form (Appendix C)
8. Proposed Program Certification/Accreditation: Please complete and attach the Regulatory Status Form (Appendix D)
9. Date of Submission:

10. Date of CVS Response:

11. Validation Decision:

Proposal Validated (APS Number: _____)

Proposal not Validated. Reason:

Signed on behalf of CVS:

Send the completed form and required appendices to: klassen@ocqas.org . For detailed information on how to complete the Application for Program Validation, please refer to the Application Instructions document. For any additional information contact: The Ontario College Quality Assurance Service, 20 Bay Street, Suite 1600, Toronto, ON M5J 2N8; or by telephone at (647) 258-7682.

**ONTARIO COLLEGES OF APPLIED ARTS AND TECHNOLOGY
CREDENTIALS VALIDATION SERVICE
APPENDIX A - PROGRAM MAPS
(Vocational Program Outcomes & Essential Employability Skills Outcomes)**

Vocational Program Learning Outcomes:

Form 1 (attached) is provided to assist you in mapping your proposed program vocational learning outcomes against existing vocational outcomes found in either Provincial Program Standards or in Provincial Program Descriptions. When completing this form, please be sure to include the MTCU code (where applicable) for the program category being referenced.

Where there is a relevant Provincial Program Standard, the approved Vocational Learning Outcomes must appear in the first column, followed by your proposed program vocational learning outcomes.

Where there are no Provincial Program Standards, the first column will contain program outcomes from the Provincial Program Description. Again, your proposed program vocational learning outcomes will be added in the middle column.

NOTE: *Both these types of documents can be obtained from staff at the CVS or at the Colleges Unit, MTCU. Electronic copies of the Program Descriptions can be found at <http://caat.edu.gov.on.ca/HTMLpages/Programs> while electronic copies of the Provincial Program Standards can be found at <http://www.edu.gov.on.ca/eng/general/progstan/index>*

If there are no such programs in the province, this information will be provided in the left column. The proposed vocational program outcomes must be written in the middle column.

The last column will contain a list of the relevant curriculum proposed in your program to address the outcome in a manner that ensures the graduate will have reliably demonstrated the required skill or ability. Course numbers or course codes, corresponding to those provided in your list of courses (Appendix C), are sufficient in this column.

Essential Employability Skills Outcomes:

A mapping of the Essential Employability Skills (EES) will be done on Form 2 (attached).

The instructions / requirements for this map are the same as for the Vocational Program Map. The first three columns contain the approved skill categories, the defining skills, and the EES learning outcomes. The last column will contain the proposed curriculum (as listed in Appendix C) that will ensure the meeting of these outcomes.

**ONTARIO COLLEGES OF APPLIED ARTS AND TECHNOLOGY
CREDENTIALS VALIDATION SERVICE**

APPENDIX A - PROGRAM MAPS

Form 1 - Vocational Program Outcomes

PROVINCIAL PROGRAM STANDARD VOCATIONAL LEARNING OUTCOMES / PROVINCIAL PROGRAM DESCRIPTION OUTCOMES	PROPOSED PROGRAM VOCATIONAL LEARNING OUTCOMES	PROPOSED PROGRAM CURRICULUM (COURSE NAME & NUMBER) ADDRESSING THE OUTCOME (From Appendix C)
<i>No comparable program that VLO's are compatible with, so not included here.</i>	1. Assess the mechanisms and causes of injury in the workplace.	ERGO ##### - Ergonomics Theory and Practice ERGO ##### - Ergonomics and its Deficiencies ERGO ##### - Human-Computer Interactions ERGO ##### - Instrumentation ERGO ##### - Human Factors and Design ERGO ##### - Safety in the Workplace ERGO ##### - Field Placement
	2. Discriminate between elements of an ergonomically sound and unsound workspace.	ERGO ##### - Ergonomics Theory and Practice ERGO ##### - Ergonomics and its Deficiencies ERGO ##### - Human-Computer Interactions ERGO ##### - Instrumentation ERGO ##### - Field Placement
	3. Evaluate ergonomic concerns in a variety of workplace settings.	ERGO ##### - Ergonomics Theory and Practice ERGO ##### - Research Methods and Statistics ERGO ##### - Human-Computer Interactions ERGO ##### - Instrumentation ERGO ##### - Human Factors and Design ERGO ##### - Field Placement

	4. Use current and past research to guide study design, evaluation, and/or proposed intervention.	ERGO ##### - Ergonomics Theory and Practice ERGO ##### - Ergonomics and Workplace Legislation ERGO ##### - Ergonomics and its Deficiencies ERGO ##### - Human-Computer Interactions ERGO ##### - Human Factors and Design ERGO ##### - Field Placement
	5. Communicate across functional teams and levels of management.	ERGO ##### - Professional Development ERGO ##### - Ergonomics Theory and Practice ERGO ##### - Field Placement
	6. Assess worker-workspace interactions using appropriate qualitative and quantitative techniques.	ERGO ##### - Ergonomics Theory and Practice ERGO ##### - Research Methods and Statistics ERGO ##### - Ergonomics and its Deficiencies ERGO ##### - Instrumentation ERGO ##### - Human Factors and Design ERGO ##### - Field Placement
	7. Utilize current technologies to assess workplace and worker functionality.	ERGO ##### - Ergonomics Theory and Practice ERGO ##### - Ergonomics and its Deficiencies ERGO ##### - Human-Computer Interactions ERGO ##### - Instrumentation ERGO ##### - Human Factors and Design ERGO ##### - Field Placement
	8. Synthesize information about proper work break patterns and exercises and communicate effectively to a wide variety of stakeholders with varying education levels and backgrounds.	ERGO ##### - Professional Development ERGO ##### - Ergonomics Theory and Practice ERGO ##### - Ergonomics and Workplace Legislation ERGO ##### - Research Methods and Statistics ERGO ##### - Ergonomics and its Deficiencies ERGO ##### - Instrumentation ERGO ##### - Safety in the Workplace ERGO ##### - Field Placement

	9. Recommend appropriate assistive tools and workstation modifications to reduce the potential for workplace injury.	ERGO ##### - Ergonomics Theory and Practice ERGO ##### - Ergonomics and its Deficiencies ERGO ##### - Human Factors and Design ERGO ##### - Field Placement
	10. Demonstrate an understanding of how human perception and information processing influence an individual's performance at work.	ERGO ##### - Ergonomics Theory and Practice ERGO ##### - Human-Computer Interactions ERGO ##### - Human Factors and Design ERGO ##### - Field Placement
	11. Effectively assess and communicate with those involved in the process of having an individual safely return to work post injury.	ERGO ##### - Professional Development ERGO ##### - Ergonomics Theory and Practice ERGO ##### - Ergonomics and Workplace Legislation ERGO ##### - Safety in the Workplace ERGO ##### - Field Placement
	12. Apply anthropometrical tables and calculations when designing equipment.	ERGO ##### - Ergonomics Theory and Practice ERGO ##### - Research Methods and Statistics ERGO ##### - Human Factors and Design ERGO ##### - Field Placement
	13. Evaluate various software programs to determine effectiveness of human-computer interactions.	ERGO ##### - Ergonomics Theory and Practice ERGO ##### - Human-Computer Interactions ERGO ##### - Human Factors and Design ERGO ##### - Field Placement
	14. Design work studies and user juries and have the	ERGO ##### - Ergonomics Theory and Practice ERGO ##### - Research Methods and Statistics

	ability to quantitatively assess their results and draw valid conclusions.	ERGO ##### - Human Factors and Design ERGO ##### - Field Placement
	15. Analyze the cost effectiveness of ergonomic methods and their value in mitigating the financial impacts of injuries in the workplace.	ERGO ##### - Ergonomics Theory and Practice ERGO ##### - Research Methods and Statistics ERGO ##### - Field Placement
	16. Formulate effective responses to the knowledge bias and resistance factors that ergonomists frequently encounter.	ERGO ##### - Professional Development ERGO ##### - Ergonomics Theory and Practice ERGO ##### - Ergonomics and Workplace Legislation ERGO ##### - Research Methods and Statistics ERGO ##### - Ergonomics and its Deficiencies ERGO ##### - Human-Computer Interactions ERGO ##### - Instrumentation ERGO ##### - Human Factors and Design ERGO ##### - Safety in the Workplace ERGO ##### - Field Placement
	17. Prepare succinct technical reports that include conclusions and recommendations which are supported by the analysis of data and the relevant scientific literature.	ERGO ##### - Professional Development ERGO ##### - Ergonomics Theory and Practice ERGO ##### - Ergonomics and Workplace Legislation ERGO ##### - Research Methods and Statistics ERGO ##### - Ergonomics and its Deficiencies ERGO ##### - Human-Computer Interactions ERGO ##### - Instrumentation ERGO ##### - Human Factors and Design ERGO ##### - Safety in the Workplace ERGO ##### - Field Placement

**ONTARIO COLLEGES OF APPLIED ARTS AND TECHNOLOGY
CREDENTIALS VALIDATION SERVICE**

APPENDIX A - PROGRAM MAPS

Form 2 - Essential Employability Skills Outcomes

SKILL CATEGORIES	DEFINING SKILLS Skill areas to be demonstrated by the graduates	ESSENTIAL EMPLOYABILITY SKILLS OUTCOMES The graduate has reliably demonstrated the ability to:	PROPOSED CURRICULUM (COURSE NAME & NUMBER) ADDRESSING THE OUTCOMES (From Appendix C)
COMMUNICATION	Reading Writing Speaking Listening Presenting Visual Literacy	1 communicate clearly, concisely, and correctly in the written, spoken, and visual form that fulfils the purpose and meets the needs of the audience	ERGO ##### - Professional Development ERGO ##### - Ergonomics Theory and Practice ERGO ##### - Ergonomics and Workplace Legislation ERGO ##### - Research Methods and Statistics ERGO ##### - Ergonomics and its Deficiencies ERGO ##### - Human-Computer Interactions ERGO ##### - Instrumentation ERGO ##### - Human Factors and Design ERGO ##### - Safety in the Workplace ERGO ##### - Field Placement
		2 respond to written, spoken, or visual messages in a manner that ensures effective communication	ERGO ##### - Professional Development ERGO ##### - Ergonomics Theory and Practice ERGO ##### - Ergonomics and Workplace Legislation ERGO ##### - Ergonomics and its Deficiencies ERGO ##### - Human-Computer Interactions ERGO ##### - Instrumentation

SKILL CATEGORIES	DEFINING SKILLS Skill areas to be demonstrated by the graduates	ESSENTIAL EMPLOYABILITY SKILLS OUTCOMES The graduate has reliably demonstrated the ability to:	PROPOSED CURRICULUM (COURSE NAME & NUMBER) ADDRESSING THE OUTCOMES (From Appendix C)
			ERGO ##### - Human Factors and Design ERGO ##### - Safety in the Workplace ERGO ##### - Field Placement
NUMERACY	Understanding and applying mathematical concepts and reasoning Analysing and using numerical data Conceptualizing	3 execute mathematical operations accurately	ERGO ##### - Ergonomics Theory and Practice ERGO ##### - Research Methods and Statistics ERGO ##### - Ergonomics and its Deficiencies ERGO ##### - Human-Computer Interactions ERGO ##### - Instrumentation ERGO ##### - Human Factors and Design ERGO ##### - Field Placement
CRITICAL THINKING & PROBLEM SOLVING	Analysing Synthesizing Evaluating Decision-making Creative and innovative thinking	4 apply a systematic approach to solve problems 5 use a variety of thinking skills to anticipate and solve problems	ERGO ##### - Ergonomics Theory and Practice ERGO ##### - Ergonomics and Workplace Legislation ERGO ##### - Research Methods and Statistics ERGO ##### - Ergonomics and its Deficiencies ERGO ##### - Human-Computer Interactions ERGO ##### - Instrumentation ERGO ##### - Human Factors and Design ERGO ##### - Safety in the Workplace ERGO ##### - Field Placement ERGO ##### - Ergonomics Theory and Practice ERGO ##### - Ergonomics and Workplace Legislation

SKILL CATEGORIES	DEFINING SKILLS Skill areas to be demonstrated by the graduates	ESSENTIAL EMPLOYABILITY SKILLS OUTCOMES The graduate has reliably demonstrated the ability to:	PROPOSED CURRICULUM (COURSE NAME & NUMBER) ADDRESSING THE OUTCOMES (From Appendix C)
			ERGO ##### - Research Methods and Statistics ERGO ##### - Ergonomics and its Deficiencies ERGO ##### - Human-Computer Interactions ERGO ##### - Instrumentation ERGO ##### - Human Factors and Design ERGO ##### - Safety in the Workplace ERGO ##### - Field Placement
INFORMATION MANAGEMENT	Gathering and managing information Selecting and using appropriate tools and technology for a task or a project Computer literacy Internet skills	6 locate, select, organize, and document information using appropriate technology and information systems	ERGO ##### - Professional Development ERGO ##### - Ergonomics Theory and Practice ERGO ##### - Ergonomics and Workplace Legislation ERGO ##### - Research Methods and Statistics ERGO ##### - Ergonomics and its Deficiencies ERGO ##### - Human-Computer Interactions ERGO ##### - Instrumentation ERGO ##### - Human Factors and Design ERGO ##### - Safety in the Workplace ERGO ##### - Field Placement
		7 analyse, evaluate, and apply relevant information from a variety of sources	ERGO ##### - Professional Development ERGO ##### - Ergonomics Theory and Practice ERGO ##### - Ergonomics and Workplace Legislation ERGO ##### - Research Methods and Statistics

SKILL CATEGORIES	DEFINING SKILLS Skill areas to be demonstrated by the graduates	ESSENTIAL EMPLOYABILITY SKILLS OUTCOMES The graduate has reliably demonstrated the ability to:	PROPOSED CURRICULUM (COURSE NAME & NUMBER) ADDRESSING THE OUTCOMES (From Appendix C)
			ERGO ##### - Ergonomics and its Deficiencies ERGO ##### - Human-Computer Interactions ERGO ##### - Instrumentation ERGO ##### - Human Factors and Design ERGO ##### - Safety in the Workplace ERGO ##### - Field Placement
INTERPERSONAL	Team work Relationship management Conflict resolution Leadership Networking	8 show respect for the diverse opinions, values, belief systems, and contributions of others	ERGO ##### - Professional Development ERGO ##### - Ergonomics Theory and Practice ERGO ##### - Ergonomics and Workplace Legislation ERGO ##### - Ergonomics and its Deficiencies ERGO ##### - Instrumentation ERGO ##### - Human Factors and Design ERGO ##### - Safety in the Workplace ERGO ##### - Field Placement
		9 interact with others in groups or teams in ways that contribute to effective working relationships and the achievement of goals	ERGO ##### - Professional Development ERGO ##### - Ergonomics Theory and Practice ERGO ##### - Ergonomics and Workplace Legislation ERGO ##### - Research Methods and Statistics ERGO ##### - Ergonomics and its Deficiencies ERGO ##### - Human-Computer Interactions ERGO ##### - Instrumentation ERGO ##### - Human Factors and Design

SKILL CATEGORIES	DEFINING SKILLS Skill areas to be demonstrated by the graduates	ESSENTIAL EMPLOYABILITY SKILLS OUTCOMES The graduate has reliably demonstrated the ability to:	PROPOSED CURRICULUM (COURSE NAME & NUMBER) ADDRESSING THE OUTCOMES (From Appendix C)
			ERGO ##### - Safety in the Workplace ERGO ##### - Field Placement
PERSONAL	Managing self Managing change and being flexible and adaptable Engaging in reflective practices Demonstrating personal responsibility	10 manage the use of time and other resources to complete projects	ERGO ##### - Professional Development ERGO ##### - Ergonomics Theory and Practice ERGO ##### - Ergonomics and Workplace Legislation ERGO ##### - Research Methods and Statistics ERGO ##### - Ergonomics and its Deficiencies ERGO ##### - Human-Computer Interactions ERGO ##### - Instrumentation ERGO ##### - Human Factors and Design ERGO ##### - Safety in the Workplace ERGO ##### - Field Placement
		11 take responsibility for one's own actions, decisions, and consequences	ERGO ##### - Professional Development ERGO ##### - Ergonomics Theory and Practice ERGO ##### - Ergonomics and Workplace Legislation ERGO ##### - Ergonomics and its Deficiencies ERGO ##### - Human-Computer Interactions ERGO ##### - Instrumentation ERGO ##### - Human Factors and Design ERGO ##### - Safety in the Workplace ERGO ##### - Field Placement

PROGRAM MAPPING - Associate Ergonomist Certificate												
PROGRAM VOCATIONAL LEARNING OUTCOMES	LEVEL ONE						LEVEL TWO					# OF COURSES EVALUATING THE OUTCOME
	Professional Development	Ergonomics Theory and Practice	Ergonomics and Workplace Legislation	Ergonomics and its Deficiencies	Instrumentation		Research Methods and Statistics	Human-Computer Interactions	Safety in the Workplace	Human Factors and Ergonomic Design	Field Placement	
1 - Introductory												
2 - Intermediate												
3 - Advanced												
The graduate has reliably demonstrated the ability to: (Source: MTCU Code)												
1. Assess the mechanisms and causes of injury in the workplace.		2						1	1	2	3	5
2. Discriminate between elements of an ergonomically sound and unsound workspace.		2			3			1	1		3	5
3. Evaluate ergonomic concerns in a variety of workplace settings.		2						3	1		3	4
4. Use current and past research to guide their study design, evaluation, and/or proposed intervention.	1	2	1	3				3	1	2	3	8
5. Communicate across functional teams and levels of management.	2	2	2	1	1			2	1	1	3	9
6. Assess worker-workspace interactions using appropriate qualitative and quantitative techniques.		2		3	3			3	1	3	3	7
7. Utilize current technologies to assess workplace and worker functionality.		2		3	3			3	1	3	3	7
8. Synthesize information about proper work break patterns and exercises and communicate effectively to a wide variety of stakeholders with varying education levels and backgrounds.		2		2	1						3	6
9. Recommend appropriate assistive tools and workstation modifications to reduce the potential for workplace injury.		2		3			3	2			3	6
10. Demonstrate an understanding of how human perception and information processing influence an individual's performance at work.		2						3		3	3	5
11. Effectively assess and communicate with those involved in the process of having an individual safely return to work post injury.	1	2	3	1					1	2	3	7
12. Apply anthropometrical tables and calculations when designing equipment.		1					2			3	3	4
13. Evaluate various software programs to determine effectiveness of human-computer interactions.		1						3			3	4
14. Design work studies and user juries and have the ability to quantitatively assess their results and draw valid conclusions.		1					3			2	3	4
15. Analyze the cost effectiveness of ergonomic methods and their value in mitigating the financial impacts of injuries in the workplace.	2	2					3		1		3	5
16. Formulate effective responses to the knowledge bias and resistance factors that ergonomists frequently encounter.	3	2	2	2						1	3	6
17. Prepare succinct technical reports that include conclusions and recommendations which are supported by the analysis of data and the relevant scientific literature.	1	2	2	2			2	2	2	2	3	9
TOTAL # OF OUTCOMES EVALUATED BY EACH COURSE	6	17	5	9	5		5	12	10	13	17	
V = Vocational Courses E = Essential Employability Skills Courses												
GM = General Education (mandatory) G = General Education (elective)												

NB - Only indicate the outcomes that are Taught & Evaluated (TE or TRE) in a course

PROGRAM COORDINATOR:
 ACADEMIC CHAIR:
 Date Completed:

Analysis of Mapping Results:

PROGRAM MAPPING (Name of Program)															
PROGRAM ESSENTIAL EMPLOYABILITY SKILLS OUTCOMES	LEVEL ONE							LEVEL TWO							
	Professional Development	Ergonomics Theory and Practice	Ergonomics and Workplace Legislation	Ergonomics and its Deficiencies	Instrumentation			Research Methods and Statistics	Human-Computer Interactions	Safety in the Workplace	Human Factors and Ergonomic Design	Field Placement		# OF COURSES SUPPORTING THE OUTCOME	TOTAL FOR PROGRAM
T = Taught	R = Reinforced	E = Evaluated													
The graduate has reliably demonstrated the ability to: (Source: MTCU Code)															
1. communicate clearly, concisely and correctly in the written, spoken, and visual form that fulfills the purpose and meets the needs of the audience.	7	5	5	5	5			5	5	5	5	6		10	10
2. respond to written, spoken, or visual messages in a manner that ensures effective communication.	4	5	7	7	7			5	5	5	5	6		10	10
3. execute mathematical operations accurately.		7		4	7			7	6	4	7	6		8	8
4. apply a systematic approach to solve problems.	4	7	7	7	7			7	5	7	7	6		10	10
5. use a variety of thinking skills to anticipate and solve problems.		7		7	7			7	6	7	7	6		8	8
6. locate, select, organize, and document information using appropriate technology and information systems.		7	4	4	7			4	7	7	7	6		9	9
7. analyze, evaluate, and apply relevant information from a variety of sources.	4	7	7	7	7			4	7	7	7	6		10	10
8. show respect for the diverse opinions, values, belief systems, and contributions of others.	4	4	4	4	4			4	4	4	4	6		10	10
9. interact with others in groups or teams in ways that contribute to effective working relationships and the achievement of goals.	4	4	4	4				4	4	4	4	6		9	9
10. manage the use of time and other resources to complete projects.	4	4	4	4	4			4	4	4	4	6		10	10
11. take responsibility for one's own actions, decisions, and consequences.	4	4	4	4	4			4	4	4	4	6		10	10
TOTAL # OF OUTCOMES SUPPORTED BY EACH COURSE	8	11	9	11	10	0	0	11	11	11	11	11	0		

PROGRAM COORDINATOR:

ACADEMIC CHAIR:

Date Completed:

ONTARIO COLLEGES OF APPLIED ARTS AND TECHNOLOGY

CREDENTIALS VALIDATION SERVICE

APPENDIX C - PROGRAM CURRICULUM

Semester	Course Code*	Course Title (and brief course description)
1	ERGO-XXXX	<p>Professional Development (<i>Lecture 30 hours</i>)</p> <p>Students will complete career planning preparations for work as a professional in the field of ergonomics. Course content will examine the ethics and code of practice for ergonomists, plus their roles and responsibilities within a workplace. Central to this course will be the compilation of a career portfolio for the eventual submission to the Canadian College of Certified Professional Ergonomics (CCCPE) governing body.</p>
1	ERGO-XXXX	<p>Ergonomics Theory and Practice (<i>Lecture 45 hours; Lab 45 hours</i>)</p> <p>This course, along with the hands-on experience gained in the lab, will build upon students' fundamental understanding of ergonomics and the application of ergonomic principles in the design of work systems. Topics of study will also include: cognitive ergonomics, architecture, ergonomic standards, and psychosocial factors that impact worker performance.</p>
1	ERGO-XXXX	<p>Research Methods & Statistics (<i>Lecture 60 hours</i>)</p> <p>This course will prepare students to conduct research and academic writing as it applies to the field of ergonomics. The research process will be introduced including: literature review, conceptualization, operationalization, and report writing. The foundations of statistical analysis will also be examined including: ANOVA, t-tests, and post-hoc tests. Additional focus will be given to the importance of sample sizes, power, and the corresponding effects on research outcomes.</p>
1	ERGO-XXXX	<p>Ergonomics and Workplace Legislation (<i>Lecture 30 hours</i>)</p> <p>Students will be introduced to applicable Ministry of Labour guidelines, government policies, and other workplace standards relating to worker safety, ergonomics, and return to work. Special attention will also be given to the role of the Workplace Safety Insurance Board (WSIB).</p>
1	ERGO-XXXX	<p>Ergonomics and its Deficiencies (<i>Lecture 45 hours</i>)</p> <p>Research that serves as the foundation for many of the tools and techniques that ergonomists use will be explored in detail in this course. A primary focus will be to get students to think critically and form opinions on research that has been conducted and how it could be improved upon. Also, students will be required to critically review a published paper of their choice and present that assessment to the class.</p>

1	ERGO-XXXX	<p>Instrumentation (<i>Lecture 45 hours; Lab 45 hours</i>)</p> <p>This course will provide students with basic knowledge of the methods of force measurement and estimation. Students will be introduced to: electromyography and the associated filtering techniques, current ergonomic software applications, and JACK modeling and simulation software. Direct application of the skills being taught will be administered and practiced in a lab setting.</p>
2	ERGO-XXXX	<p>Human Factors and Design (<i>Lecture 45 hours; Lab 10 hours</i>)</p> <p>Students will expand upon their knowledge of basic human factor principles, with an applied focus on specific industries. This course will also include a detailed section on anthropometry and understanding of z scores and percentiles with their impact on design, in addition to the importance of end-user trials</p>
2	ERGO-XXXX	<p>Human-Computer Interactions (<i>Lecture 30 hours</i>)</p> <p>This course introduces students to the methodologies and principles for designing user interfaces, as well as the importance of program layout and suitability. Additional focus will be given to human psychology and how humans process information and react to their environment.</p>
2	ERGO-XXXX	<p>Safety in the Workplace (<i>Lecture 60 hours</i>)</p> <p>This course will equip students with a background in safety, such that they will feel comfortable in addressing and documenting the probability and severity of safety hazards.</p>
3	ERGO-XXXX	<p>Field Placement (<i>280 hours</i>)</p> <p>This practical learning exercise enables students to apply skills and concepts learned in the classroom and laboratory settings. Participation will enable students to increase their competency as an ergonomics practitioner.</p>

CTO%	42%	42%	42%	42%	42%	42%	42%
Net present value @ 8%	<u>\$617,202</u>						

Notes:

1. Grant based on existing Autism Grad Cert program
2. Tuition based on existing Autism Grad Cert program
3. 90%/10% domestic/international enrolments assumed
4. Based on lvl 1 enrolment total of 35
5. Based on estimate - none

INPUT FIELDS

Tuition - domestic lvl 1/2		\$1,930.65
(per term) lvl 3/4		\$0.00
Grant all levels		\$1,791.79
(per term)		
Program specific fee all levels		\$0.00
Tuition - international lvl 1/2		\$6,490.00
(per term) lvl 3/4		\$0.00
Enrolment split domestic		90%
international		10%
Part time / Partial load split %	PT	60%
	PL	40%
hrly rate	PT	\$60.50
(incl. ben's)	PL	\$100.65

Number of weeks for PT/PL

28

YEAR 1

Enrolment table	Program name		
	Domestic	Int'l	
level 1 - Fall	32	3	35
level 2 - Winter	29	3	32
level 3	0	0	0
level 4	0	0	0
	61	6	67

Tuition rates

	Domestic	Int'l
level 1	1,930.65	6,490.00
level 2	1,930.65	6,490.00
level 3	0.00	0.00
level 4	0.00	0.00

Grant values

	Domestic	Int'l
level 1	1,791.79	0.00
level 2	1,791.79	0.00
level 3	1,791.79	0.00
level 4	1,791.79	0.00

YEAR 2

Enrolment table	Program name		
	Domestic	Int'l	
level 1 - Fall	32	3	35
level 2 - Winter	29	3	32
level 3	0	0	0
level 4	0	0	0
	61	6	67

Tuition rates

	Domestic	Int'l
level 1	1,930.65	6,490.00
level 2	1,930.65	6,490.00
level 3	0.00	0.00
level 4	0.00	0.00

Grant values

	Domestic	Int'l
level 1	1,791.79	0.00
level 2	1,791.79	0.00
level 3	1,791.79	0.00
level 4	1,791.79	0.00



YEAR 3

Enrolment table

	Program name			
	Domestic	Int'l		
level 1 - Fall	32	3	35	
level 2 - Winter	29	3	32	
level 3	0	0	0	
level 4	0	0	0	
	61	6	67	

Tuition rates

	Domestic	Int'l
level 1	1,930.65	6,490.00
level 2	1,930.65	6,490.00
level 3	0.00	0.00
level 4	0.00	0.00

Grant values

Domestic	Int'l
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level 1	1,791.79	0.00
level 2	1,791.79	0.00
level 3	1,791.79	0.00
level 4	1,791.79	0.00

YEAR 4

Enrolment table

Program name

	Domestic	Int'l	
level 1 - Fall	32	3	35
level 2 - Winter	29	3	32
level 3	0	0	0
level 4	0	0	0
	61	6	67

Tuition rates

Domestic

Int'l

level 1	1,930.65	6,490.00
level 2	1,930.65	6,490.00
level 3	0.00	0.00
level 4	0.00	0.00

Grant values

Domestic

Int'l

level 1	1,791.79	0.00
level 2	1,791.79	0.00
level 3	1,791.79	0.00
level 4	1,791.79	0.00

<u>Year 9</u>	<u>Year 10</u>	<u>Total</u>
109,299	109,299	983,693
156,710	156,710	1,567,097
0	0	0
0	0	0
<u>266,009</u>	<u>266,009</u>	<u>2,550,789</u>
0	0	0
1	1	
133,838	133,838	1,338,380
8	8	
16,078	16,078	160,776
		0
		35,000
4,200	4,200	42,000
		0
<u>154,116</u>	<u>154,116</u>	<u>1,576,156</u>
<u>111,893</u>	<u>111,893</u>	<u>974,633</u>

42%

42%