

Fanshawe College

FIRST: Fanshawe Innovation, Research, Scholarship, Teaching

Documentation (Approvals etc...)

Advanced Ergonomic Studies

2014

FANS 01315 Advanced Ergonomic Studies - CVS Application

Fanshawe College

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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 ___X___ Yes ___ No

1. College: FANSHAWE COLLEGE OF APPLIED ARTS AND TECHNOLOGY
2. College contact person responsible for this proposal: Name: Mark Hunter, Title: Interim Chair - School of Public Safety, Telephone: 519.452.4430 x5043, Electronic mail: mhunter@fanshawec.ca
3. Proposed Program Title: Advanced Ergonomic Studies
4. Proposed Credential: (please indicate below) Local Board Approved Certificate [], Ontario College Certificate [], Ontario College Diploma [], Ontario College Advanced Diploma [], 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: Oct 6 2014
10. Date of CVS Response: November 18 2014
11. Validation Decision: X Proposal Validated (APS Number: FANS 01315) [] Proposal not Validated. Reason:
Signed on behalf of CVS: Karen Belfer

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.



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**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.



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ONTARIO COLLEGES OF APPLIED ARTS AND TECHNOLOGY
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APPENDIX A - PROGRAM MAPS
Form 1 - Vocational Program Outcomes

PROVINCIAL PROGRAM STANDARD VOCATIONAL LEARNING OUTCOMES / PROVINCIAL PROGRAM DESCRIPTION OUTCOMES (MTCU code)	PROPOSED PROGRAM VOCATIONAL LEARNING OUTCOMES	COURSE TITLE / COURSE CODE (From Appendix C)
No comparable program that VLO's are compatible with, so not included here.	1. Assess worker-workplace interactions and ergonomic concerns using current technologies and appropriate qualitative and quantitative techniques.	ERGO #### - Professional Development 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 #### - Safety in the Workplace ERGO #### - Field Placement
	2. Identify the mechanisms and causes of injury in a variety of workplace settings and recommend appropriate assistive tools and workstation modifications to reduce the potential for workplace injury.	ERGO #### - Professional Development ERGO #### - Ergonomics and Workplace Legislation ERGO #### - Instrumentation ERGO #### - Safety in the Workplace ERGO #### - Field Placement
	3. Synthesize information about the elements of an ergonomically sound workplace and proper work	ERGO #### - Ergonomics Theory and Practice



	break patterns and exercises to guide their study design, evaluation, and/or proposed intervention.	ERGO #### - Research Methods and Statistics ERGO #### - Instrumentation ERGO #### - Human Factors and Design ERGO #### - Field Placement
	4. 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
	5. Prepare succinct technical reports and design specifications that include conclusions and recommendations that 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
	6. Collaborate and communicate effectively across functional teams and levels of management including with those involved in the process of having an individual safely return to work following an injury.	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 #### - Human Factors and Design



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		ERGO #### - Safety in the Workplace ERGO #### - Field Placement
	7. Recommend workstation, equipment, and tool design changes based on the application of anthropometrical tables and calculations.	ERGO #### - Ergonomics Theory and Practice ERGO #### - Research Methods and Statistics ERGO #### - Instrumentation ERGO #### - Human Factors and Design ERGO #### - Field Placement
	8. Examine the impact of biophysical and psychosocial factors including human perception and information processing on an individual's performance in the workplace.	ERGO #### - Ergonomics Theory and Practice ERGO #### - Human-Computer Interactions ERGO #### - Human Factors and Design ERGO #### - Field Placement



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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:	COURSE TITLE / COURSE CODE (From Appendix C)
COMMUNICATION	<ul style="list-style-type: none"> • Reading • Writing • Speaking • Listening • Presenting • Visual Literacy 	<ul style="list-style-type: none"> ➤ 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
		<ul style="list-style-type: none"> ➤ 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 ERGO #### - Human Factors and Design ERGO #### - Safety in the Workplace ERGO #### - Field Placement



SKILL CATEGORIES	DEFINING SKILLS Skill areas to be demonstrated by the graduates	ESSENTIAL EMPLOYABILITY SKILLS OUTCOMES The graduate has reliably demonstrated the ability to:	COURSE TITLE / COURSE CODE (From Appendix C)
NUMERACY	<ul style="list-style-type: none"> • Understanding and applying mathematical concepts and reasoning • Analysing and using numerical data • Conceptualizing 	<ul style="list-style-type: none"> ➤ 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	<ul style="list-style-type: none"> • Analysing • Synthesizing • Evaluating • Decision-making • Creative and innovative thinking 	<ul style="list-style-type: none"> ➤ apply a systematic approach to 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
		<ul style="list-style-type: none"> ➤ 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



SKILL CATEGORIES	DEFINING SKILLS Skill areas to be demonstrated by the graduates	ESSENTIAL EMPLOYABILITY SKILLS OUTCOMES The graduate has reliably demonstrated the ability to:	COURSE TITLE / COURSE CODE (From Appendix C)
			ERGO #### - Human-Computer Interactions ERGO #### - Instrumentation ERGO #### - Human Factors and Design ERGO #### - Safety in the Workplace ERGO #### - Field Placement
INFORMATION MANAGEMENT	<ul style="list-style-type: none"> • Gathering and managing information • Selecting and using appropriate tools and technology for a task or a project • Computer literacy • Internet skills 	<ul style="list-style-type: none"> ➤ 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
		<ul style="list-style-type: none"> ➤ 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 ERGO #### - Ergonomics and its Deficiencies ERGO #### - Human-Computer Interactions



SKILL CATEGORIES	DEFINING SKILLS Skill areas to be demonstrated by the graduates	ESSENTIAL EMPLOYABILITY SKILLS OUTCOMES The graduate has reliably demonstrated the ability to:	COURSE TITLE / COURSE CODE (From Appendix C)
			ERGO #### - Instrumentation ERGO #### - Human Factors and Design ERGO #### - Safety in the Workplace ERGO #### - Field Placement
INTER-PERSONAL	<ul style="list-style-type: none"> • Team work • Relationship management • Conflict resolution • Leadership • Networking 	<ul style="list-style-type: none"> ➤ 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
		<ul style="list-style-type: none"> ➤ 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 ERGO #### - Safety in the Workplace



SKILL CATEGORIES	DEFINING SKILLS Skill areas to be demonstrated by the graduates	ESSENTIAL EMPLOYABILITY SKILLS OUTCOMES The graduate has reliably demonstrated the ability to:	COURSE TITLE / COURSE CODE (From Appendix C)
			ERGO #### - Field Placement
PERSONAL	<ul style="list-style-type: none"> • Managing self • Managing change and being flexible and adaptable • Engaging in reflective practices • Demonstrating personal responsibility 	<ul style="list-style-type: none"> ➤ 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
		<ul style="list-style-type: none"> ➤ 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



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APPENDIX B - PROGRAM DESCRIPTION**

PROGRAM DESCRIPTION: (including occupational areas where it is anticipated graduates will find employment)

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.

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

VOCATIONAL PROGRAM LEARNING OUTCOMES: (vocational program learning outcomes must be consistent with the requirements of the Credentials Framework for the proposed credential)

The graduate has reliably demonstrated the ability to:

1. Assess worker-workplace interactions and ergonomic concerns using current technologies and appropriate qualitative and quantitative techniques.
2. Identify the mechanisms and causes of injury in a variety of workplace settings and recommend appropriate assistive tools and workstation modifications to reduce the potential for workplace injury.
3. Synthesize information about the elements of an ergonomically sound workplace and proper work break patterns and exercises to guide their study design, evaluation, and/or proposed intervention.
4. Analyze the cost effectiveness of ergonomic methods and their value in mitigating the financial impacts of injuries in the workplace.
5. Prepare succinct technical reports and design specifications that include conclusions and recommendations that are supported by the analysis of data and the relevant scientific literature.
6. Collaborate and communicate effectively across functional teams and levels of management including with those involved in the process of having an individual safely return to work following an injury.
7. Recommend workstation, equipment, and tool design changes based on the application of anthropometrical tables and calculations.
8. Examine the impact of biophysical and psychosocial factors including human perception and information processing on an individual's performance in the workplace.

ADMISSION REQUIREMENTS:

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

- Kinesiology
- Health Sciences
- Nursing
- Engineering

Including qualifying university or college-level courses that cover :

- Anatomy
- Physiology



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- Biomechanics
- Statistics
- Ergonomics



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APPENDIX C - PROGRAM CURRICULUM

Semester	Course Code*	Course Title (and brief course description)
1	ERGO-XXXX	Professional Development (<i>Lecture 30 hours</i>) Students will complete career planning preparations for work as a professional in the field of ergonomics. Course content will explore the ethics and code of practice for ergonomists, along with 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.
1	ERGO-XXXX	Ergonomics Theory and Practice (<i>Lecture 45 hours; Lab 45 hours</i>) This course, along with the kinesthetic 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.
1	ERGO-XXXX	Research Methods & Statistics (<i>Lecture 60 hours</i>) This course will prepare students to conduct research and prepare associated 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.
1	ERGO-XXXX	Ergonomics and Workplace Legislation (<i>Lecture 30 hours</i>) Applicable Ministry of Labour guidelines, government policies, and other workplace standards relating to worker safety, ergonomics, and return to work practices will be explored. Special attention will also be given to the role of the Workplace Safety Insurance Board (WSIB).
1	ERGO-XXXX	Ergonomics and its Deficiencies (<i>Lecture 45 hours</i>) Research that serves as the foundation for many of the tools and techniques used by ergonomists will be explored in detail in this course. A primary focus will be to lead 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 the assessment
1	ERGO-XXXX	Instrumentation (<i>Lecture 45 hours; Lab 45 hours</i>) Methods of force measurement and estimation will be studied. 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 taught will be administered and practiced.



2	ERGO-XXXX	Human Factors and Design (<i>Lecture 45 hours; Lab 10 hours</i>) 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 anthropometry and promote understanding of z scores and percentiles with their impact on design, in addition to the importance of end-user trials
2	ERGO-XXXX	Human-Computer Interactions (<i>Lecture 30 hours</i>) 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.
2	ERGO-XXXX	Safety in the Workplace (<i>Lecture 60 hours</i>) This course will provide students with a background in safety, such that they will feel comfortable in addressing and documenting the probability and severity of safety hazards.
3	ERGO-XXXX	Field Placement (<i>280 hours</i>) This practical learning exercise provides an opportunity for 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.

* (be sure to identify those courses designed to deliver General Education)



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APPENDIX D – REGULATORY STATUS FORM
MANDATORY REGULATORY REQUIREMENTS

Where licensing or certification is *required by legislation* for entry to practice in the profession or trade, the Ministry of Training, Colleges and Universities requires that colleges ensure that their programs will meet the requirements of the regulatory body in order to be approved for funding.

- There is a legislative requirement that program graduates must be certified or licensed by a regulatory authority to practice or work in the occupation.

Name of regulatory authority_____

- (A*) The program has been accredited or approved by the regulatory authority or its identified third party?

OR

- (B*) The college is working toward accreditation with the regulatory authority.

Status of application and expected date of achievement_____

- (C*) If the regulatory authority does not accredit educational programs directly or by an identified third party, has it formally acknowledged (e.g. in its published or legislated registration requirements) that the program graduates will be eligible to write any required certifying or registration exam or that the program is otherwise recognized for the purposes of certifying or registering a graduate?

*Please submit an acknowledgement and/or evidence from the regulatory authority to support (a) or (b) or (c) above.



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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).

★ 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*).