2011

FANS 01290 - Aviation Technician – Aircraft Maintenance CVS Application

Fanshawe College

Ontario College Quality Assurance Service
Service de l'assurance de la qualité des collèges de l'Ontario

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

2. College contact person responsible for this proposal:

   Name: Rob Gorrie

   Title: Chair, School of Transportation Technology

   Telephone: (519) 452 – 4196

   Electronic mail: rgorrie@fanshawec.ca

3. Proposed Program Title: Aviation Technician – Aircraft Maintenance

4. Proposed Credential: (please indicate below)

   Local Board Approved Certificate ☐

   Ontario College Certificate ☐

   Ontario College Diploma X

   Ontario College Advanced Diploma ☐

   Ontario College Graduate Certificate ☐

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: December 1, 2011

10. Date of CVS Response: December 02, 2011

11. Validation Decision:

☐ Proposal Validated (APS Number: **FANS 01290**)

Signed on behalf of CVS: Tim Klassen

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 Instructions for Submission document. For any additional information contact: College Credential Validation Service, 655 Bay Street, Suite 1010, Toronto, ON M5G 2K4; or by telephone at (416) 596-8799.

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 Branch, MTCU.*

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 (MTCU code 56600)	PROPOSED PROGRAM VOCATIONAL LEARNING OUTCOMES	COURSE TITLE / COURSE CODE (From Appendix C)
1.Inspect and service aircraft systems on large or small, fixed or rotary wing aircraft utilizing current and relevant theories of aerodynamics; aircraft; and mechanical, electrical, electronic, and engineering principles.	1.Inspect and service aircraft systems on large or small, fixed or rotary wing aircraft utilizing current and relevant theories of aerodynamics; aircraft; and mechanical, electrical, electronic, and engineering principles.	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18
2. Inspect, test, troubleshoot, service, repair and overhaul aircraft in a manner that ensures adherence to Canadian aviation and company regulations of aircraft safety and airworthiness.	2. Inspect, test, troubleshoot, service, repair and overhaul aircraft in a manner that ensures adherence to Canadian aviation and company regulations of aircraft safety and airworthiness.	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18
3. Evaluate fixed wing and rotary aircraft structures including transparencies, materials and fasteners,	3. Evaluate fixed wing and rotary aircraft structures including transparencies, materials and fasteners,	1, 2, 12, 13, 16, 17, 18

furnishings and fabric coverings, and lines and conduits, to complete maintenance, assembly, fabrication and repair work on large and small aircraft.	furnishings and fabric coverings, and lines and conduits, to complete maintenance, assembly, fabrication and repair work on large and small aircraft.	
4. Perform scheduled and unscheduled inspections on aircraft systems, structures, instruments, and related components to ensure they are in proper working order and meet standards of performance and safety.	4. Perform scheduled and unscheduled inspections on aircraft systems, structures, instruments, and related components to ensure they are in proper working order and meet standards of performance and safety.	1, 2, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 16, 17, 18
5. Install aircraft engines, parts, components and structures as part of routine and unscheduled maintenance and replacement tasks.	5. Install aircraft engines, parts, components and structures as part of routine and unscheduled maintenance and replacement tasks.	3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 18
6. Diagnose malfunctions or other problems in aircraft systems, structures, instruments, and related components using technical manuals, drawings, blueprints, and standards of performance and safety.	6. Diagnose malfunctions or other problems in aircraft systems, structures, instruments, and related components using technical manuals, drawings, blueprints, and standards of performance and safety.	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18
7. Complete structural and non-structural repairs and modifications by following applicable procedures and safety precautions, and meeting industry standards.	7. Complete structural and non-structural repairs and modifications by following applicable procedures and safety precautions, and meeting industry standards.	2, 16, 17, 18

8. Perform component wear and fatigue analysis using appropriate measuring devices to determine necessary repair or replacement tasks in order to maintain the aircraft's airworthiness and safety.	8. Perform component wear and fatigue analysis using appropriate measuring devices to determine necessary repair or replacement tasks in order to maintain the aircraft's airworthiness and safety.	1, 2, 17, 18
9. Perform service, maintenance, repair, reconditioning, and modification procedures on aircraft systems, structures, instruments, and related components to maintain aircraft safety and airworthiness.	9. Perform service, maintenance, repair, reconditioning, and modification procedures on aircraft systems, structures, instruments, and related components to maintain aircraft safety and airworthiness.	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18
10. Dismantle airframes, aircraft engines and other systems for repair and overhaul.	10. Dismantle airframes, aircraft engines and other systems for repair and overhaul.	2, 3, 4, 10, 11, 16
11. Interpret written instructions, schematics, manufacturer's specifications, technical drawings, manuals, and computer based information correctly, effectively, and efficiently while performing routine and unscheduled tasks.	11. Interpret written instructions, schematics, manufacturer's specifications, technical drawings, manuals, and computer based information correctly, effectively, and efficiently while performing routine and unscheduled tasks.	1, 17, 18
12. Maintain detailed inspection, repair, maintenance, and certification records and reports to meet industry regulations and logbook requirements.	12. Maintain detailed inspection, repair, maintenance, and certification records and reports to meet industry regulations and logbook requirements.	1, 17, 18

13. Complete all work in a manner that enhances health, wellness, and personal wellbeing; reduces the risk of occupational and workplace injury; meets relation health, safety and environmental legislation; and conforms to occupational health and safety guidelines.	13. Complete all work in a manner that enhances health, wellness, and personal wellbeing; reduces the risk of occupational and workplace injury; meets relation health, safety and environmental legislation; and conforms to occupational health and safety guidelines.	Integrated in all courses

Add additional rows as required to complete the mapping exercise.

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	• Reading • Writing • Speaking • Listening • Presenting • Visual Literacy	➢ communicate clearly, concisely, and correctly in the written, spoken, and visual form that fulfils the purpose and meets the needs of the audience	Integrated in all courses
		➢ respond to written, spoken, or visual messages in a manner that ensures effective communication	Integrated in all courses
NUMERACY	• Understanding and applying mathematical	➢ execute mathematical operations accurately	3, 4, 5, 7, 8, 9, 10, 11, 13, 14, 15

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)
	concepts and reasoning • Analysing and using numerical data • Conceptualizing		
CRITICAL THINKING & PROBLEM SOLVING	• Analysing • Synthesizing • Evaluating • Decision-making • Creative and innovative thinking	➢ apply a systematic approach to solve problems	Integrated in all courses
		➢ use a variety of thinking skills to anticipate and solve problems	Integrated in all courses
INFORMATION	• Gathering and	➢ locate, select, organize, and document	Integrated in all courses

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)
MANAGEMENT	managing information • Selecting and using appropriate tools and technology for a task or a project • Computer literacy • Internet skills	information using appropriate technology and information systems	
		➢ analyse, evaluate, and apply relevant information from a variety of sources	Integrated in all courses
INTER-PERSONAL	• Team work • Relationship management • Conflict resolution • Leadership • Networking	➢ show respect for the diverse opinions, values, belief systems, and contributions of others	Integrated in all courses
		➢ interact with others in groups or teams in ways that contribute to effective working relationships and the achievement of	Integrated in all courses

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)
		goals	
PERSONAL	• Managing self • Managing change and being flexible and adaptable • Engaging in reflective practices • Demonstrating personal responsibility	➢ manage the use of time and other resources to complete projects	Integrated in all courses
		➢ take responsibility for one's own actions, decisions, and consequences	Integrated in all courses

ONTARIO COLLEGES OF APPLIED ARTS AND TECHNOLOGY

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APPENDIX B - PROGRAM DESCRIPTION

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

Aircraft maintenance technicians install, maintain, repair and overhaul aeronautical products including mechanical, electrical, hydraulic and computerized equipment. They rigorously check and inspect equipment to identify and correct hazards and comply with Transport Canada standards of safety and performance. Aircraft Maintenance Technicians may specialize in specific kinds of aircraft such as single-engine aircraft, multi-engine aircraft, jet transports and helicopters. Typical employers include aircraft and parts manufacturers, the federal government, airline companies, service firms to air transport companies, and defence services.

This multi-disciplinary program is intended to provide participants with the theoretical knowledge of how fixed and rotary wing aircraft are built and how they work and the practical skills required to address installation, maintenance and repair. The Fanshawe program will incorporate a unique opportunity for students to work on aircraft in flying condition, as well as static aircraft, since many of the practical laboratory components will be taught at the School of Transportation Technology facility.

The program of studies is based on the comprehensive curriculum developed and endorsed by the Canadian Council for Aviation and Aerospace. It will be offered with a 28 hour POS over two 10-month academic years. Well-paid employment in the field is not dependent upon graduating from an accredited or approved program. Unlicensed graduates work under the supervision of a licensed Aircraft Maintenance Engineer (AME); further certification or licensing throughout the graduate's career is, therefore, voluntary. However, once this program is active and can demonstrate it meets requirements with regard to content, administration, resources, faculty and facilities, Canadian Council for Aviation and Aerospace (CCAA) accreditation and Transport Canada approval as a training organization will be sought.

Graduation from a CCAA accredited program and Transport Canada approved training organization may, in future, significantly reduce the amount of on-the-job training required before graduates can seek further certification and licensing.

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. Inspect and service aircraft systems on large or small, fixed or rotary wing aircraft utilizing current and relevant theories of aerodynamics; aircraft; and mechanical, electrical, electronic, and engineering principles.
2. Inspect, test, troubleshoot, service, repair and overhaul aircraft in a manner that ensures adherence to Canadian aviation and company regulations of aircraft safety and airworthiness.
3. Evaluate fixed wing and rotary aircraft structures including transparencies, materials and fasteners, furnishings and fabric coverings, and lines and conduits, to complete maintenance, assembly, fabrication and repair work on large and small aircraft.
4. Perform scheduled and unscheduled inspections on aircraft systems, structures, instruments, and related components to ensure they are in proper working order and meet standards of performance and safety.
5. Install aircraft engines, parts, components and structures as part of routine and unscheduled maintenance and replacement tasks.
6. Diagnose malfunctions or other problems in aircraft systems, structures, instruments, and related components using technical manuals, drawings, blueprints, and standards of performance and safety.
7. Complete structural and non-structural repairs and modifications by following applicable procedures and safety precautions, and meeting industry standards.
8. Perform component wear and fatigue analysis using appropriate measuring devices to determine necessary repair or replacement tasks in order to maintain the aircraft's airworthiness and safety.
9. Perform service, maintenance, repair, reconditioning, and modification procedures on aircraft systems, structures, instruments, and related components to maintain aircraft safety and airworthiness.
10. Dismantle airframes, aircraft engines and other systems for repair and overhaul.
11. Interpret written instructions, schematics, manufacturer's specifications, technical drawings, manuals, and computer based information correctly, effectively, and efficiently while performing routine and unscheduled tasks.
12. Maintain detailed inspection, repair, maintenance, and certification records and reports to meet industry regulations and logbook requirements.
13. Complete all work in a manner that enhances health, wellness, and personal wellbeing; reduces the risk of occupational and workplace injury; meets relation health, safety and environmental legislation; and conforms to occupational health and safety guidelines.

ADMISSION REQUIREMENTS:

Required Courses:

- Grade 12 Compulsory English (ENG 4C or ENG 4U)
- Grade 12 Mathematics (C) or (U).

Recommended Courses:

- Grade 12 (C) Transportation Technology, (TTJ 4C)
- Grade 11 or 12 Physics

ONTARIO COLLEGES OF APPLIED ARTS AND TECHNOLOGY

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APPENDIX C - PROGRAM CURRICULUM

Semester	Course Code*	Course Title (and brief course description)
1	#1	**Standard Practices for Aviation** This course provides an introduction to the standard methods and processes used in the aviation industry. This includes the use of manuals, drawings, standard procedures and documentation.
1	#2	**Theory of Flight and Aircraft Structures** This course provides the basic physics involved in the theory of flight and explains the purpose and operation of flight controls. Testing, inspection and treatment methods of metallic components that make up various aircraft structures are introduced in this course.
1	#3	**Reciprocating Engine Fundamentals** Fundamental concepts of reciprocating engine operation, maintenance and repair are included in this course. Students will learn to use appropriate tools, equipment and manuals during the practical component of this course.
1	#4	**Reciprocating Engine Systems** This course is designed to provide both theory and hands-on training required to test, service and maintain various systems on a reciprocating engine such as induction and exhaust systems, fuel systems, and electrical systems.
2	#5	**Aircraft Hydraulics** This course provides the fundamental knowledge and hands-on training required to diagnose, service, and repair aircraft

		hydraulic and pneumatic components and systems.
2	#6	**Landing Gear Systems** This course provides the theory and hands-on training required to diagnose, service and repair aircraft landing gear systems including tires, wheels, brakes, and gear operation.
2	#7	**Electrical and Electronics** This course provides the theory and hands-on training required to diagnose, service and repair electrical electronic aircraft systems using prescribed equipment and methods.
2	#8	**Power Generation and Distribution** This course provides the theory and hands-on training required to diagnose, service, repair and adjust aircraft power generation and distribution systems.
3	#9	**Aircraft Propellers** This course provides the theory and hands-on training required to service, repair, inspect, remove and replace and overhaul various propellers including fixed and variable pitch and constant speed types.
3	#10	**Gas Turbine Engine Fundamentals** Fundamental concepts of gas turbine engine operation, maintenance and repair are included in this course. Students will learn to use appropriate tools, equipment and manuals to disassemble, test, inspect and reassemble gas turbine engines during the practical component of this course.
3	#11	**Gas Turbine Systems** This course is designed to provide both theory and hands-on training required to test, service and maintain various systems on a gas turbine engine such as instrumentation, ignition, fuel and lubrication.

3	#12	**Aircraft Rigging** This course provides the required knowledge of flight controls and surfaces to enable the inspection and adjustment according to manufacturers' specifications.
3	#13	**Rotary Wing Aircraft** This course provides the theory and hands-on skills to understand the principles of rotary wing flight. The practical portion of this course involves inspection, service and repair of rotary wing aircraft.
4	#14	**Aircraft Instrumentation** This course provides the theory and hands-on skills to understand the design and operation of various instruments used in aircraft including mechanical, electrical, electronic, magnetic and gyroscopes. Practical activities will include the removal and installation of various types of aircraft instrumentation following prescribed methods and practices.
4	#15	**Avionics** This course provides the theory and hands-on skills to understand the operation of aircraft electrical and electronic systems. Practical activities will focus on the operation, installation, testing and diagnosis of aircraft systems including navigation, flight instrumentation, communications and radar.
4	#16	**Aircraft Ancillary Systems** This course provides the theory and hands-on skills to understand the operation of various aircraft ancillary systems such as fuel, cabin pressurization, fire suppression, oxygen supply and de-icing systems.
4	#17	**Maintenance Operations and Regulations** The course will provide a basic understanding of Transport Canada CAR STD 566. It will also provide familiarization

		with quality assurance practices, aircraft recordkeeping and other aircraft maintenance operations involved in the aviation industry.
4	#18	**Aircraft Maintenance Procedures** This course will provide the theory and hands-on skills required to efficiently perform maintenance procedures on various aircraft and aircraft systems. A thorough understanding of human factors as they relate to aircraft maintenance is also covered in this course.
2	#19	**General Education Elective**
3	#20	**General Education Elective**
4	#21	**General Education Elective**

Add additional rows as required to complete the curriculum chart.

∗ **(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: **Transport Canada**

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

OR

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

Status of application and expected date of achievement: In progress, expected date of approval **August 2012**

Fanshawe College is currently an Approved Training Organization (ATO) with Transport Canada. Our ATO approval number is TC-2011-08-4128. In the process of becoming an ATO we had to create a Training Control manual (TCM) that listed all of our policies and procedures we would be following in the delivery of all aviation training. Now that this manual is in effect and contains the approval to deliver the Aviation Technician – Avionics Maintenance program, all that remains to

be done to gain approval from Transport Canada is to present them with our curriculum documents for the Aviation Technician-Aircraft Maintenance. We anticipate this being completed prior to **August 2012.**

☐ **(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.**

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.):_____

★ **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*).