2019

FANS 04020 Aircraft Structural Repair Technician - CVS Application - non-funded

Fanshawe College

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

Aircraft Structural Repair Technician

Fanshawe College | APS # FANS04020 | MTCU # 46600
Ontario College Certificate | Funding not requested

Purpose

The one-year Ontario College Certificate prepares students to repair, overhaul, and modify commercial aircraft in accordance with high standards of aviation safety. The hands-on, project-based curriculum in this program provides students with technical training for material and component assembly, fabrication, manufacturing, and repair.
This program is designed to be accredited by Transport Canada so that graduates receive 10 months towards a Transport Canada-issued Aircraft Maintenance Engineer (AME) License, Category S. Graduates of this program will be prepared for careers with Canadian and international aircraft maintenance, repair, and overhaul organizations.

Admission

OSSD with courses from the College (C), University (U), University/College (M), or Open (O) stream WITH:
- Any Grade 12 English (C) or (U)
- Any Grade 12 Mathematics (C) or (U)
OR
Academic and Career Entrance Certificate (ACE)
OR
Pre-Technology Ontario College Certificate
OR
Ontario High School Equivalency Certificate (GED) AND:
- Any Grade 12 Mathematics (C) or (U)
OR
Mature Applicant with standing in the required courses stated above
OR
Equivalent as assessed by the College

English Language Requirements
Applicants whose first language is not English will be required to demonstrate proficiency in English by one of the following methods:
• A Grade 12 College Stream or University Stream English credit from an Ontario Secondary School, or equivalent, depending on the program's Admission Requirements
• Test of English as a Foreign Language (TOEFL) test with a minimum score of 550 for the paper-based test (PBT), or 79 for the Internet-based test (iBT), with test results within the last two years
• International English Language Testing System (IELTS) Academic test with an overall score of 6.0 with no score less than 5.5 in any of the four bands, with test results within the last two years.
• Canadian Academic English Language (CAEL) test with an overall score of 60 with no score less than 50 in any of the four bands, with test results within the last two years

• Pearson Test of English Academic (PTE) with a minimum score of 53, with test results within the last two years
• A Cambridge English Test (FCE/CAE/CPE) with an overall score on the Cambridge English Scale of 169 with no language skill less than 162, with test results within the last two years
• An English Language Evaluation (ELE) at Fanshawe College with a minimum score of 70% in all sections of the test, with test results within the last two years
• Fanshawe College ESL4/GAP5 students: Minimum grade of 80% in ESL4/GAP5 Level 8, 75% in ESL4/GAP5 Level 9, or 70% in ESL4/GAP5 Level 10

Recommended Academic Preparation
• Grade 12 Transportation Technology (C)
• Grade 11 or Grade 12 Physics (C) or (U)
• It is recommended that students in the Academic and Career Entrance Certificate (ACE) program take a Technical or Apprenticeship Mathematics course within the ACE program.

Applicant Selection Criteria
Where the number of eligible applicants exceeds the available spaces in the program, the Applicant Selection Criteria will be:
1. Preference for Permanent Residents of Ontario
2. Receipt of Application by February 1st (After this date, Fanshawe College will consider applicants on a first-come, first-served basis until the program is full)
3. Achievement in the Admission Requirements

Occupational Areas

This program is designed to be accredited by Transport Canada so that graduates receive 10 months towards a Transport Canada-issued Aircraft Maintenance Engineer (AME) License, Category S.

Graduates of this program will be prepared for careers with Canadian and international aircraft maintenance, repair, and overhaul organizations.

Laddering Opportunities

Graduates of this program will be eligible to receive advanced standing into the Aviation Technology – Aircraft Maintenance and Structural Repair Advanced Diploma program at Fanshawe College, allowing them to complete the program in two additional years.

Program VLOs

1. Complete minor and major maintenance, assembly, fabrication, and structural repair work on large or small, fixed or rotary wing aircraft using the appropriate tools and equipment.
2. Diagnose malfunctions and defects or other problems in metallic and composite structures, instruments, and related components using technical manuals, drawings, blueprints, engineering orders, and standards of performance and safety.
3. Complete airworthiness directives, manufacturers' service bulletin, and engineering modification tasks on aircraft systems and metallic and composite structures.
4. Dismantle and reassemble airframes for repair and overhaul.

5. Evaluate the structural integrity of airframes prior to and during disassembly to prevent further damage to the airframe.
6. Design and generate damage reports, shop sketches and rectification statements and use design criteria to generate damage repair schemes.
7. Identify and employ modern manufacturing techniques with advanced composite and sheet metal structures.
8. Perform weight and balance calculations to ensure accurate aircraft information is available for flight and loading.
9. Interpret written instructions, schematics, manufacturers' specifications, technical drawings, manuals, and computer-based information while performing routine and unscheduled tasks.
10. Maintain detailed inspection, repair, maintenance, and certification records and reports to meet industry regulations and logbook requirements.
11. Perform all work in accordance with health and safety regulations, manufacturers' specifications, Canadian Aviation Regulations and Transport Canada guidelines, and company practices, policies, and procedures.

Curriculum

- **AVIA-XXX1 - Shop Management and Safety** (Semester 1 - 30.00 hours)
  This course is an introduction to the Aircraft Maintenance Engineer (AME) category S license. It outlines the regulations, requirements and processes as well as the roles and responsibilities of the AME in the shop/hangar environment. The course also provides study of general tools and tools specific to aviation and how they are safely used on the materials of the aircraft industry.
- **AVIA-XXX2 - Technical Drawings/Information Interpretation** (Semester 1 - 60.00 hours)
  In this course, students will gain the knowledge and skills necessary to read and interpret aircraft schematics and technical drawings. They will use schematics, technical drawings, and manufacturers’ publications and standard to identify fixed and rotary wing aircraft components and systems, assess damaged aircraft structures, and prepare damage reports. Students will also generate shop sketches, fastener layouts, and paperwork rectification statements.
- **AVIA-XXX3 - Mechanics of Flight** (Semester 1 - 45.00 hours)
  This course involves the study of the fundamental aerodynamic principles governing flight of fixed and rotary wing aircraft. Emphasis is on the devices and components used for aircraft control and flight performance.
- **AVIA-XXX4 - Aircraft Structures** (Semester 1 - 60.00 hours)
  This course involves the study of aircraft structures and materials maintenance, including the types of hardware used in the construction of modern aircraft as well as structural repair techniques and modifications.
- **AVIA-XXX5 - Repairs – Introduction** (Semester 1 - 225.00 hours)
  In this course, students will use industry repair manuals to identify the appropriate procedures to use to perform repairs on the sheet metal structural components used in aircraft construction. In the laboratory, students will practice and develop their riveting skills, install and remove fasteners, and perform layout procedures and bend calculations. They will also complete repair processes such as countersinking, dimpling, and micro-shaving.
- **AVIA-XXX6 - Mathematics for Aircraft Maintenance** (Semester 1 - 30.00 hours)
  This course involves the study of technical mathematics as it applies to aircraft structural repair work. Students will take measurements and perform calculations to solve applied problems,

including bends, weight and balance, centre of gravity, ratios, and trigonometry.

- **AVIA-XXX7 - General Hand Tools** (Semester 1 - 30.00 hours)
  In this course, students will implement or practice shop safety practices using the hand tools used for aircraft structural repairs, including precision measuring instruments.
- **AVIA-XXX8 - Composites – Introduction** (Semester 1 - 30.00 hours)
  This course introduces the student to the modern composite materials and processes used to manufacture and repair aircraft structural components. Shop safety and materials handling guidelines are emphasized.
- **AVIA-XXX9 - Aircraft Systems** (Semester 2 - 45.00 hours)
  This course provides a comprehensive overview of various aircraft systems, including their operation and applicable service and maintenance tasks. Topics include fluid lines, aircraft cable construction, ice and rain protection, hydraulic systems, landing gear systems, fire protection and propulsion systems.
- **AVIA-XX10 - Repairs – Advanced** (Semester 2 - 195.00 hours)
  This course will build on students' knowledge and skills for performing aircraft structural repairs, including such topics as, spar and bulkhead repair. In addition, students will learn control surface repair, wood and fabric repair, corrosion treatment and control, advanced fasteners and the use of jigs. Most repairs will involve forming aluminium alloy from flat stock.
- **AVIA-XX11 - Plastics and Sealants** (Semester 2 - 30.00 hours)
  In this course, students will identify and apply the methods for manufacturing and repairing aircraft plexiglass components and for applying sealants.
- **AVIA-XX12 - Non-Destructive Testing** (Semester 2 - 30.00 hours)
  The students will research the types of non-destructive testing methods used by the aircraft industry and identify the advantages, disadvantages, and procedures for each NDT method. This course will emphasize Dye Penetrant, Magnetic Particle Inspection, Visual, and Radiographic inspection procedures.
- **AVIA-XX13 - Metallurgy and Heat Treating Processes** (Semester 2 - 30.00 hours)
  Metallurgy is the study of metals, their properties, and, in relation to aircraft, their structural applications. This course will involve the examination of topics such as ferrous and non-ferrous metal, heat treatment processes for steel and aluminium alloys, and mechanical properties, including hardness. In this course, students will identify how to apply different heat-treating processes for improving metals for aircraft structural use.
- **AVIA-XX14 - Canadian Air Regulations** (Semester 2 - 30.00 hours)
  In this course, students will be introduced to the various sections of Transport Canada's Aviation Regulations (CARs). Topics include applicable regulations, technical records, aeronautical publications and paperwork forms for the aviation industry.
- **AVIA-XX15 - Composites – Advanced** (Semester 2 - 135.00 hours)
  This course builds on students' knowledge of composite materials and the repair of composite aircraft parts. Students will build and repair aircraft structural components using advanced composite materials, manufacturing techniques, and repair methods.

VLO Mapping

Code	1	2	3	4	5	6	7	8	9	10	11

AVIA-XXX1			X		X	X	X		X	X	X
AVIA-XXX2	X	X	X	X	X	X	X	X	X	X	X
AVIA-XXX3				X				X			
AVIA-XXX4	X	X		X	X	X	X		X		
AVIA-XXX5	X	X	X	X	X	X	X	X	X	X	X
AVIA-XXX6	X	X	X	X	X	X		X	X		X
AVIA-XXX7	X	X			X						X
AVIA-XXX8	X	X	X		X	X	X	X	X	X	X
AVIA-XXX9	X	X	X	X	X	X	X	X	X		X
AVIA-XX10	X	X	X	X	X	X	X	X	X	X	X
AVIA-XX11							X		X		X
AVIA-XX12					X		X		X	X	X
AVIA-XX13	X				X		X		X	X	X
AVIA-XX14	X		X		X	X	X	X	X	X	X
AVIA-XX15	X	X	X	X	X	X	X		X	X	X

EES Mapping

Code	1	2	3	4	5	6	7	8	9	10	11	12	13
AVIA-XXX1	X	X		X	X	X	X	X	X	X	X		
AVIA-XXX2	X	X	X			X				X			
AVIA-XXX3	X	X	X	X	X		X						
AVIA-XXX4			X	X	X		X						
AVIA-XXX5			X	X	X	X	X				X		
AVIA-XXX6	X	X	X	X	X	X					X		
AVIA-XXX7				X	X	X	X			X	X		
AVIA-XXX8			X	X	X	X	X	X	X	X	X		

AVIA-XXX9	X	X		X	X		X					
AVIA-XX10			X	X	X	X	X	X		X	X		
AVIA-XX11		X	X	X			X	X	X	X	X		
AVIA-XX12		X	X	X	X	X	X			X	X		
AVIA-XX13		X	X			X	X			X	X		
AVIA-XX14	X	X				X	X			X			
AVIA-XX15				X	X	X	X	X	X	X	X		

Certification/Accreditation

Certification type:

There is a legislative requirement that program graduates must be certified or licensed by a regulatory authority to practice or work in the occupation (Mandatory recognition of a regulatory authority exists and is being sought)

Details

Name of regulatory authority:

Transport Canada

The college is working toward accreditation with the regulatory authority/ designated third party (current status of application):

At present, the Fanshawe College Transport Canada Regulator has been made aware of the proposed program, and the appropriate applications are being sought. Fanshawe College is currently an Approved Training Organization (ATO) with Transport Canada for delivery of three programs: Aviation Technician – Aircraft Maintenance, Aviation Technician – Avionics Maintenance, and Aviation Technology – Aircraft Maintenance and Avionics. Detailed curriculum documents will need to be presented to Transport Canada to have this proposed Aircraft Structural Repair Technician program approved.

Attachments

None

Contact Information

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