

COURSE OUTLINE

COURSE: Aircraft Systems Maintenance
PROGRAM: 280.C0 Aircraft Maintenance Technology
DISCIPLINE: 280 Aeronautics
WEIGHTING: Theory: 0 Practical Work: 4 Personal Study : 2

Teacher(s)	Office	☎ extension	✉ email or web site
Yvan Larivière	C-182	4761	yvan.lariviere@cegepmontpetit.ca

OFFICE HOURS (Availability)

	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
Morning					
Afternoon					

Coordinator(s)	Office	☎ extension	✉ e-mail
Éric Goudreault	C-160	4691	eric.goudreault@cegepmontpetit.ca
Stéphanie Arpin	C-160	4630	stephanie.arpin@cegepmontpetit.ca

INTRODUCTION AND CONTEXT OF THIS COURSE IN THE PROGRAM

This course is offered during the sixth session of the Aircraft Maintenance Program and is the main practical activity devoted to aircraft systems.

The knowledge gained in other courses, in particular those related to general electricity, aerodynamics, flight instruments, hydraulics, pneumatics and systems operation is essential in order to follow this course.

Inspecting, servicing and maintaining aircraft systems are a top priority for an AME and this is the goal of this course.

In order to enable students to achieve the ministry objective, the activities reflect the following framework:

- systems standards, specifications and specific regulations
- methods used to inspect and test a system
- identification of all the possible causes of a defect
- use of simulation and defect diagnosis software (if possible)
- follow-up of maintenance procedures
- appropriate technical vocabulary
- workplace hazardous materials information system
- professionalism : safe attitude and behaviour

Students must keep this course outline for the duration of their studies as it will be useful for the comprehensive assessment at the end of the program.

Transport Canada: This course outline meets the requirements of Training Organisation Certification Manual (MCF) of Transport Canada. The Department applies Transport Canada standard which allows a maximum absence of 5% for the course (theory and laboratory). The department compiles absences of all students enrolled in Aircraft Maintenance (280.C0) and Avionics (280.D0) according to Transport Canada requirements. The application of Transport Canada policies regarding absences is available on the college website and in the student agenda under the heading « Privilèges accordés par Transports Canada ».

COMPETENCE OF GRADUATE PORTRAIT

Execute maintenance of aircraft systems.

MINISTRY OBJECTIVE

0269 Perform maintenance on aircraft systems.

026C Perform maintenance on aircraft landing gear systems.

TERMINAL COURSE OBJECTIVE

Develop a methodology and technic of work on aircraft systems according to the manufacturer's procedures and in compliance with Transport Canada standards.

TEACHING AND LEARNING STRATEGIES

As a team, students will be asked to perform exercises to maintain aircraft systems on aircraft or models and evaluate the performances of aircraft systems.

Each activity requires the use of prior knowledge and the application of strict standards and regulations previously established that may come from various levels: Transport Canada, aircraft parts manufacturers, employers, recognized organizations, maintenance policy manual, etc.

COURSE PLAN

APPRENTICESHIP OBJECTIVES

1. Retrieve the proper information
2. Plan the work
3. Perform activities related to the maintenance on different aircraft systems and understanding of the different systems
4. Trouble shoot anomalies
5. Perform activities related to the modification of the configuration
6. Clean properly the work area

WEEK	LEARNING OBJECTIVES	CONTENT
1	<ul style="list-style-type: none"> • 1-Retrieve the proper information • 2-Plan the work • 3-Perform activities related to the understanding of different systems 	<ul style="list-style-type: none"> - Presentation of the activities and instructions of execution, presentation of the grids of evaluation, creation of sub-teams. - Tour of the hangar and explanations of the safety rules - Preparation for week 2
<p>Group A Weeks 2-4-6</p> <p>Group B Weeks 3-5-7</p>	<ul style="list-style-type: none"> • 1-Retrieve the proper information • 2-Plan the work • 3-Perform activities related to the maintenance on different aircraft systems and understanding of the different systems • 4-Trouble shoot anomalies • 5-Perform activities related to the modification of the configuration • 6-Clean properly the work area 	<ul style="list-style-type: none"> • Thrust reverser functional test on the Challenger 601 • De-icing and anti-icing system functional test on the Dornier 328-100. • Functional check and test of the landing gear and anti-skid system on the Learjet60 • Each team will perform all 3 activities in a rotation pattern

Group A Weeks 8-10-12	<ul style="list-style-type: none"> 1-Retrieve the proper information 2-Plan the work 3-Perform activities related to the maintenance on different aircraft systems and understanding of the different systems 	<ul style="list-style-type: none"> Landing gear functional test on the Cessna 421 Operational test and functional check of the fuel quantity indication system on the Dornier 328-100 Operational check and functional check on the thrust reversers of the Learjet60 Each team will perform all 3 activities in a rotation pattern
Group B Weeks 9-11-13	<ul style="list-style-type: none"> 4-Trouble shoot anomalies 5-Perform activities related to the modification of the configuration 6-Clean properly the work area 	

Because of the COVID-19 pandemic situation each group will be divided in to 2 sub-group A and B to be safe and to prevent the propagation of the virus.

Sub-group A will be in person on even weeks (2, 4, 6, 8, 10, 12)

Sub-group B will be in person on odd weeks (3, 5, 7, 9, 11, 13)

Each group will have to perform a preparation on the week they are at home related to the activities they will be doing in person by retrieving information and understand the system they will be working on. This presentation will have to be submitted the day before their activity in person on Léa or Teams. Example of the presentation required will be given to you on week 1 and will be available on Léa.

SYNTHESIS OF EVALUATION METHODS

Description of Evaluation Activity	Learning Objective(s)	Context	Evaluation criteria	Weighting (%)
<div style="background-color: yellow; padding: 2px;"> Group A Weeks 3-5-7-9-11-13 </div> <div style="background-color: cyan; padding: 2px; margin-top: 5px;"> Group B Weeks 2-4-6-8-10-12 </div> <p>Individual preparation At home</p>	<ul style="list-style-type: none"> 1-Retrieve proper information 2-Plan the work 3-Understand how each system tested on different aircrafts during the activities in person. 	<p>Individual activities</p> <p>Preparation to be submitted 1 day before the activity in person.</p> <p>Individual Evaluation</p> <p>(1 week on 2 At home)</p>	<ul style="list-style-type: none"> Precise identification of standards Judicious choice of operations to be executed Fair distinction of the functioning of a system 	20%

<p>Group A Weeks 2-4-6-8-10-12</p> <p>Group B Weeks 3-5-7-9-11-13</p> <p>Hangar related activities in person</p>	<ul style="list-style-type: none"> • 1-2 Plan and sort out the sequence of operation in relation with the norms, specifications, objectives, needs and characteristic of different systems. • 3-Perform activities related to the necessary maintenance and repairs of a system to maintain its airworthiness; • 5-Execute procedures relative to the maintenance and repair of landing gears • 4-Identify snags in relation with establish data during system functional tests • 6-Clean properly the work area 	<p>Teamwork maintenance activities at the hangar</p> <p>Written report required</p> <p>Individual evaluation</p> <p>(1 week on 2 In person at the school)</p>	<ul style="list-style-type: none"> • Precise identification of standards; • Judicious choice of operations to be executed; • Fair distinction of the functioning of a system; • Identification and analysis of anomalies; • Logic problem solving. • Keep work area clean 	40%
<p>This 40% evaluation is used to certify and validate that the students have reached the final objective of the course: "Develop a methodology and technic of work on aircraft systems according to the manufacturer's procedures and in compliance with Transport Canada standards."</p>				
<p>Week 14</p> <p>Summative evaluation</p> <p>Written exam In person</p> <p>Individual evaluation</p>	<ul style="list-style-type: none"> • 1-2 Plan and sort out the sequence of operation in relation with the norms, specifications, objectives, needs and characteristic of different systems. • 3- Execute procedures relative to the maintenance and repair of landing gears • 4- Identify snags in relation with establish data during system functional tests 		<ul style="list-style-type: none"> • Precise identification of standards • Understanding of all activities performed during weeks 2 to 13 • Identification of defects on different aircrafts 	40%

Total : 100%

MEDIAGRAPHY

All documentation related to maintenance activities on aircrafts during the course will be available on the computers.

USA, Dep. of Transportation. « Advisory circular DOT FAA », EA-AC 43.13-1B.

USA, Dep. of Transportation. «Airframe and powerplant; airframe handbook », AC 65-ISA, FAA 1976. D 629.1343 E 83a (Hydraulique. Trains. Carburant. Oxygène. Sécurité. Dégivrage. Pressurisation).

USA, Dep. of Transportation. « Maintenance d'aéronefs, Méthodes, techniques et pratiques reconnues » Circulaire d'information, EA-AC 43.13-1A et 2A ISBN2-89113-114-2.

REQUIREMENTS TO PASS THE COURSE

(1) Passing Mark

The passing mark for this course is 60% (PIEA, article 5.1m).

(2) Attendance for Summative Evaluations

Attendance at summative evaluation activities is mandatory. (PIEA, article 5.2.5.1).

(3) Submitting Assignments

Homework required by the teacher must be handed in at the established date, place and time. The penalties associated with delays are established according to departmental rules (PIEA, article 5.2.5.2).

In case of delay the penalties are:

- See section « Règles des départements » at the following website link:
<http://guideena.cegepmontpetit.ca/regles-des-departements/>

(4) Presentation of Written Work

The student must meet the "Written Work Standard Presentation" adopted by the CEGEP. Non-compliance with these standards may delay the acceptance of work or affect the rating granted. These standards are available in **Flash Links, Bibliothèques** under "**Méthodologie**" of the CEGEP Documentation Centers at: www.cegepmontpetit.ca/normes.

The **departmental penalties** for non-compliance with Written Work Standard Presentation (PIEA, article 5.3.2) are:

- See section « Règles des départements » at the following link:
<http://guideena.cegepmontpetit.ca/regles-des-departements/>

REQUIRED MATERIAL

SAFETY MEASURES IN THE HANGARS

Following items are mandatory when the student is in person

- 1- Safety shoes
- 2- Safety goggles
- 3- Procedure face mask provided by the school
- 4- Safety working clothes (ÉNA polo or Coverall)

OTHER DEPARTMENTAL REGULATIONS

Students are encouraged to consult the website for the specific regulations for this course:

<http://guideena.cegepmontpetit.ca/regles-des-departements/>.

INSTITUTIONAL POLICIES AND REGULATIONS

All students enrolled in the École nationale d'aérotechnique of Édouard-Montpetit CEGEP must be aware of and comply with the contents of institutional policies and regulations. In particular, the *Politique institutionnelle de la langue française (PILF)*, the *Politique pour un milieu d'études et de travail exempt de harcèlement et de violence (PPMÉTEHV)*, the *conditions of admission and academic progress*, the *procedure dealing with student complaints within educational relations*.

The complete version of these policies and regulations is available on the CEGEP website at the following address: <http://www.cegepmontpetit.ca/ena/a-propos-de-l-ecole/reglements-et-politiques>. In case of discrepancy between the version appearing elsewhere and the complete version, the complete version will be applied and will be considered the official version for legal purposes.

Student accessibility center - for students with disabilities

Students having received a professional diagnosis of impairment (motor skills, neurological, organic, sensory, learning difficulties, mental health, autism spectrum disorder or other) or suffering from a temporary medical condition may request special accommodations.

Students seeking these accommodations must forward their diagnosis to the CSA by either MIO to « Service, CSA-ENA » or email to « servicesadaptesena@cegepmontpetit.ca ».

Students already registered with the CSA must communicate with their teachers at the beginning of the semester to discuss those accommodations they have been awarded by the CSA.

ANNEX

None.