

Course outline

COURSE TITLE: Aircraft System Maintenance

PROGRAM: 280.C0 Aircraft Maintenance

DISCIPLINE: 280 Aeronautics

WEIGHTING: Theory: 0 Practice: 4 Personal Study: 2

Teacher(s)	Office	☎ extension	✉ e-mail ou website
Yvan Larivière	C-182	4761	yvan.lariviere@ena.ca

Office hours

	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
Morning					
Afternoon	13:00 to 16:00				13:00 to 14:00
Other					

Coordinator(s)	Office	☎ extension	✉ e-mail
Joaquin Mora	C160	4220	joaquin.mora@ena.ca
Jeanne Dumas-Roy	C160	4470	jeanne.dumasroy@ena.ca

1 CONTEXT OF THIS COURSE WITHIN THE PROGRAM

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

The knowledge gained in previous courses, particularly 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) according to Transport Canada requirements. The application of Transport Canada policies regarding absences is available on the [Student Guide](#) website under the heading « Information/AME and AML licences ».

2 COMPETENCIES OF THE EXIT PROFILE (STUDENT SKILL PROFILES)

Execute maintenance on aircraft systems.

3 MINISTERIAL OBJECTIVE(S) AND COMPETENCIES

0269 Perform maintenance on aircraft systems.

026C Perform maintenance on aircraft landing gear systems.

4 TERMINAL OBJECTIVE OF THE COURSE (FINAL 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.

5 TEACHING AND LEARNING STRATEGIES

Each week for every team a crew chief will be named for the conduction of the activity. Crew chief role will be to report to the teacher and guide his teammates throughout the activity. Teamwork is mandatory for this course.

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

The work orders and the questionnaires will need to be completed before the end of each class and handed to the teacher.

6 COURSE PLAN

LEARNING OBJECTIVES

1. Retrieve the proper information.
2. Plan the work.
3. Perform the activities related to the maintenance on different systems and understanding of the different systems.
4. Troubleshoot anomalies.
5. Clean properly the work area.

LABORATORY

WEEK	# OBJECTIVE	CONTENT	MODE OF INSTRUCTION AND LEARNING ACTIVITIES	DOCUMENTATIONS, RESOURCES, TECHNOLOGICAL TOOLS AND URL ADDRESS
1	1-2	Introduction Presentation of all the paperwork and all the activities D60 hangar visit Familiarisation activity on the different aircrafts	Teacher's presentation of all the different course's documentation on a TV. Hangar visit with a familiarisation activity on the different aircrafts.	All the documents will be available on LÉA and computer access will be required by the students. Technical library can be accessed with the following link: https://bit.ly/3fJUDJC
2 3 4	ALL	Each team will perform in a rotation pattern the related activities on different aircrafts	ACTIVITIES DO328 Deice system Lear60 Anti-Skid and gear extension/retraction CL601 Nose wheel steering system	All the work orders and the questionnaires are available on LÉA and access to the technical library on a computer.
5	1-2-3-4	EXAM #1	Written exam with short answers and multiple choices questions based on all 3 activities from weeks 2-3-4 Predetermined scenarios on different aircrafts will be provided	Computer access will be mandatory for each student. Exam copy will be provided by the teacher.
6 7 8	ALL	Each team will perform in a rotation pattern the related activities on different aircrafts	ACTIVITIES C421 Pressurisation system Lear60 Thrust reversers system CL601 Landing gear extension/retraction and aircraft jacking / unjacking	All the work orders and the questionnaires are available on LÉA and access to the technical library on a computer.

WEEK	# OBJECTIVE	CONTENT	MODE OF INSTRUCTION AND LEARNING ACTIVITIES	DOCUMENTATIONS, RESOURCES, TECHNOLOGICAL TOOLS AND URL ADDRESS
9 10 11	ALL	Each team will perform in a rotation pattern the related activities on different aircrafts	ACTIVITIES DO328 Hydraulic system and brake bleeding C421 Landing gear inspection and retraction/extension CL601 Thrust reversers system	All the work orders and the questionnaires are available on LÉA and access to the technical library on a computer.
12 13 14	ALL	Each team will perform in a rotation pattern the related activities on different aircrafts	ACTIVITIES C421 Deice system DO328 Engine oil chip detection system Lear60 Engine fire detection system	All the work orders and the questionnaires are available on LÉA and access to the technical library on a computer.
15	1-2-3-4	FINAL EXAM	Written exam with short answers and multiple choices questions based on all 9 activities from weeks 6 to 14 Predetermined scenarios on different aircrafts will be provided	Computer access will be mandatory for each student. Exam copy will be provided by the teacher.

7 SYNTHESIS OF SUMMATIVE EVALUATION METHODS

LABORATORY

Description of Evaluation Activity	Context	Learning objective(s)	Evaluation Criteria ¹	Due Date (approximate date assignment due or exam given)	Weighting (%)
EXAM #1 Written exam based on all 3 activities from weeks 2-3-4 Short answers and multiple choices questions based on predetermined scenarios	Individual evaluation Approximately 3 hours allowed for the exam Computer access will be mandatory for each student	1-2-3-4	Precise identification of standards Understanding of all activities performed on the different systems during weeks 2-3-4	WEEK 5	25%

¹ Issus du programme d'études (critères de performance) et adaptés au niveau des étudiants (exigences évolutives) d'une session à l'autre. Les critères d'évaluation doivent être explicites et permettre l'observation des résultats (processus, produits, propos). Les critères d'évaluation seront présentés par écrit aux étudiants au moins une semaine avant l'activité d'évaluation sommative (article 5.1j PIEA)

Technical record Work Order completion Questionnaires	Each student will be required to complete the work orders and the questionnaires Individual evaluation on the completion of the work orders as per the class technical record rules available on LÉA.	1-2-3-4	The technical record evaluation grid is available on LÉA	WEEKS 6-9-12	15%
Competencies evaluation Performances	The competencies and the performances during the activities Individual evaluation	1-2-3-4-5	The competencies and performances evaluation grid is available on LÉA	FROM WEEK 8 TO 13 IN ROTATION FOR EACH TEAM*	20%
FINAL EXAM Terminal evaluation	Individual evaluation Approximately 3 hours allowed for the exam Computer access will be mandatory for each student	1-2-3-4	Precise identification of standards Understanding of all activities performed on the different systems during weeks 6 to 14	WEEK 15	40%
				TOTAL	100 %

***For the Competencies evaluations, each team will be evaluated twice on a rotation pattern (1 team each week) and the evaluation dates will be provided on the weekly schedule available on LÉA.**

8 REQUIRED MATERIAL

- All the documentation will be available on LÉA. The students will have the choice to provide the paper copy or an electronic copy via MIO for the work orders and the questionnaires.

9 MEDIAGRAPHY

FAA, AC43-13 Aircraft inspection, repair & alterations. Acceptable methods, techniques and practices, https://www.faa.gov/regulations_policies/advisory_circulars/index.cfm/go/document.information/documentID/99861, 10 janvier 2021

FAA, AC 20-106 Aircraft Inspection for the General Aviation Aircraft Owner https://www.faa.gov/regulations_policies/advisory_circulars/index.cfm/go/document.information/documentID/22051, 12 janvier 2021

All ENA's technical publications (MM, IPC, SB, etc). Available on the school's computer or at home following this link: <https://bit.ly/3fUjDC>

10 REQUIREMENTS TO PASS THE COURSE

1. Passing Mark

The passing mark for this course is 60% by adding the marks for the theory and practical work for the course.

2. Attendance for Summative Evaluations

Presence at exams is obligatory. Any absence from an evaluation activity which is not justified by a serious reason will mean a mark of zero and failure of this evaluation. According to article 5.2.5.1 of the *Institutional Policy on the Evaluation of Student Achievement* (IPESA). *“it is the student’s responsibility to take the necessary means to meet his teacher and explain the motives for his absence with a supporting document explaining his absence. If the motives are serious and recognized as such by the teacher, the teacher and the student will agree to the terms of the delay for doing the evaluation or assignment.”*

In addition, the IPESA indicates that *“if a student is late for an evaluation activity with no justifiable reason, the teacher can refuse to allow the student to participate in the said activity.”*

Serious reasons that can be considered are: illness (with a medical certificate), death of a family member (with a death certificate), a force majeure or overpowering event, activities authorized by the College, and legal reason (proof of the court summons).

3. Submitting Assignments

All assignments must be submitted by the date, time and place designated by the teacher (s). Unless there is an agreement with the teacher, late assignments are penalized by the deduction of 10% per day, and a mark of zero will be given when the assignment is six days late. Any assignments due in the fifteenth week cannot be submitted late.

4. Presentation of Written Work

The teacher (s) will provide students with information and guidelines regarding the presentation of written work. When the presentation of an assignment is judged unacceptable, the work will be penalized as a late assignment until an acceptable version is submitted. In this case, the penalties for late work will be applied.

Students must follow the standards adopted by the Cégep for written work (« *Normes de présentation matérielle des travaux écrits* »). These can be found at : <http://rms.h.cegepmontpetit.ca/normes-de-presentation-materielle-des-travaux-ecrits-du-cegep/>.

5. Plagiarism and other breaches of academic integrity

- a) Plagiarism consists of copying, translating, paraphrasing, in whole or in part, the work of another person and wrongfully attributing it to oneself, with or without their consent, and constitutes a breach of academic integrity.
- b) The use of works generated entirely or partially by artificial intelligence, if not authorized by the professor, is also considered a breach of academic integrity.
- c) Acts of fraud, such as impersonating another student during a summative assessment, deceiving, cheating, or falsifying documents or results, also constitute breaches of academic integrity.
- d) Any collaboration in such acts or any attempt to commit them is also considered a breach of intellectual ethics.

Any violation of intellectual honesty, as well as any attempt at or collaboration in such an action will result in a mark of “0” for the exam, the assignment or the evaluation activity in question. In this case, the teacher will make a written report to departmental coordination which will be transmitted to the Dean of Studies in accordance with article 5.6.1 IPESA.

11 METHODS OF COURSE PARTICIPATION

Accident prevention is the responsibility of each and every individual. We invite you to familiarize yourself with all health and safety measures at <https://mareussite.cegepmontpetit.ca/ena/mes-outils/sante-et-securite/>.

Bringing food or beverages into the laboratories is strictly prohibited.

Attire worn by students in laboratories and workshops must feature the ÉNA logo. The use of hooded sweatshirts with drawstrings is not permitted due to safety risks when using equipment or machinery. ÉNA-branded clothing is available for purchase at the ÉNA Coop (room C163-A).

Authorized pants include work pants or jeans without any decorations (nails, metal parts, etc.).

Personal Protective Equipment (PPE) is essential for the safety of students and is mandatory in laboratories, workshops, and hangars. This includes wearing safety footwear (boots or shoes) and safety glasses. Protective clothing such as lab coats or uniforms is only necessary when required.

12 OTHER DEPARTMENTAL REGULATIONS

Students are invited to consult the website for the specific rules for this course:

<https://guideena-en.cegepmontpetit.ca/departement-rules/>

<https://mareussite.cegepmontpetit.ca/ena/mon-parcours/mon-programme/regles-departementales>

13 INSTITUTIONAL POLICIES AND REGULATIONS

Any student registered at Cégep Édouard-Montpetit must read the content of certain institutional policies and regulations and comply with them.

The French titles for these policies are: *Politique institutionnelle d'évaluation des apprentissages* (PIEA), la *Politique institutionnelle de la langue française* (PILF), la *Politique pour un milieu d'études et de travail exempt de harcèlement et de violence* (PPMÉTEHV), les *Conditions d'admission et cheminement scolaire*, la *Procédure concernant le traitement des plaintes étudiantes dans le cadre des relations pédagogiques*.

The full text of these policies and regulations is accessible on the Cégep web site at the following address: <http://www.cegepmontpetit.ca/ena/a-propos-de-l-ecole/reglements-et-politiques>. If there is a disparity between shortened versions of the text and the full text, the full text will be applied and will be considered the official version for legal purposes.

14 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-ÉNA" or email to "servicesadptesena@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.

15 ANNEX