

Course outline

COURSE : **Aircraft system operation**

PROGRAM : 280.C0 Aircraft Maintenance

DISCIPLINE : 280 Aeronautics

WEIGHTING : *Theory : 2* *Practice : 2* *Personal Study : 2*

Teacher(s)	Office	☎ extension	✉ e-mail ou website
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Office hours

	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
Morning					
Afternoon					
Other					

Coordinator(s)	Office	☎ extension	✉ e-mail
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1 CONTEXT OF THIS COURSE WITHIN THE PROGRAM

The course *Aircraft Systems Operation* (280-5A4) is offered during the 5th session of the Aircraft Maintenance Program (280.C0). All students enrolled in this program are called upon in one manner or another to analyze, do work and inspect the integrity and operation of aircraft systems.

In the workshops, students review the condition of components and check their operation on the test benches. On the aircraft, they perform necessary maintenance work on the systems to assure the airworthiness of the aircraft. Troubleshooting is characterized by first analyzing, understanding and testing the operation of the systems. Next the reasons for the system failure must be identified, justified and confirmed. In order to correct the problem, students need to then be able to replace the defective component, check the settings and make the adjustments as determined by the designer of the aircraft and approved by the civil aviation authority. Students must find this information in the appropriate maintenance manuals. The final step involves checking the integrity of the system by testing its operation and then signing the maintenance release, in the appropriate technical files.

In short, to carry out all of the responsibilities related to the position, an aircraft maintenance technician must be able to explain and analyze the operation of systems as well as their components, use appropriate vocabulary, gather the necessary documentation for the job and apply all required security measures to maintain the airworthiness of the aircraft.

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 [Ma réussite à l'ÉNA](#) website under the heading « Privilèges accordés par Transports Canada ».

2 COMPETENCIES OF THE EXIT PROFILE (STUDENT SKILL PROFILES)

Perform maintenance on aircraft systems.

3 MINISTERIAL OBJECTIVE(S) AND COMPETENCIES

026C Perform activities related to maintaining aircraft systems.

0269 Perform maintenance of landing gear.

4 TERMINAL OBJECTIVE OF THE COURSE (FINAL COURSE OBJECTIVE)

At the end of this course, student will be able to understand general principle of operation of certain aircraft systems and identify, compare, analyse and troubleshoot different parts of similar systems and determine the cause of an anomalies.

5 TEACHING AND LEARNING STRATEGIES

The course is structured using formal lectures and computer projections. Teacher will use parts and mock-up available in classroom. Some visits to the hangars for visualisation on aircrafts are also possible. Schematics and texts from aircraft technical manuals will be widely used during this class. They will enhance the explanations, supported by questions and discussions to develop a detailed analysis of the operation of the systems.

6 COURSE PLAN

LEARNING OBJECTIVES

<ol style="list-style-type: none"> 1. Distinguish different systems and their main components. 2. Analyse system general operation. 3. Determine and troubleshoot system failure.
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Important: all teaching activities (theory and laboratory) are scheduled in class. In case of a transfert to remote class due to the situation, Microsoft Teams will be used for synchronous teaching. 1,2

WEEK	# OBJECTIVE	CONTENT	MODE OF INSTRUCTION AND LEARNING ACTIVITIES	DOCUMENTATIONS, RESOURCES, TECHNOLOGICAL TOOLS AND URL ADDRESS
1	1	Course plan, ATA system presentation, semester work presentation and ATA 32	ATA 32 chapter content In class	Notebook (LÉA) Documentation (LÉA) Microsoft Teams
2	1,2	ATA 32	ATA 32 chapter content In class	Notebook (LÉA) Documentation (LÉA)
3	1,2	ATA 32	ATA 32 chapter content In class	Notebook (LÉA) Documentation (LÉA)
4	1,2,3	ATA 32	ATA 32 chapter content In class	Notebook (LÉA) Documentation (LÉA)
5	1,2,3	Evaluation 1	Evaluation in class	
6	1,2	ATA 36	ATA 36 chapter content In class	Notebook (LÉA) Documentation (LÉA)
7	1,2,3	ATA 30	ATA 30 chapter content In class	Notebook (LÉA) Documentation (LÉA)
8	1,2	ATA 21	ATA 21 chapter content In class	Notebook (LÉA) Documentation (LÉA)
9	1,2,3	ATA 21	ATA 21 chapter content In class	Notebook (LÉA) Documentation (LÉA)
10	1,2,3	Evaluation 2	Evaluation 2 in class	
11	1,2	ATA 35	ATA 35 chapter content In class	Notebook (LÉA) Documentation (LÉA)
12	1,2,3	ATA 28	ATA 28 chapter content	Notebook (LÉA)

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			In class	Documentation (LÉA)
13	1,2,3	ATA 32	ATA 32 chapter content In class	Notebook (LÉA) Documentation (LÉA)
14	1,2,3	Semester works	Semester works presentation	Microsoft Teams Documentation (LÉA)
15	1,2,3	Evaluation 3	Evaluation 3	

7 SYNTHESIS OF SUMMATIVE EVALUATION METHODS

Description of Evaluation Activity	Context	Learning objective(s)	Evaluation Criteria ¹	Due Date (approximate date assignment due or exam given)	Weighting (%)
Evaluation 1. Description and functional analysis of ATA 32	Individual exam. Short answers and some multiples choices. Duration 2 hours. No material allowed.	1,2,3	System operation analysis, malfunction identification and troubleshooting	Week 5	20 %
Evaluation 2. Description and functional analysis of ATA's 36, 30 and 21	Individual exam. Short answers and some multiples choices. Duration 2 hours. No material allowed.	1,2,3	System operation analysis, malfunction identification and troubleshooting	Week 10	20 %
Semester work	Team work based on a specific system (to be determined). Presentation of complete system operation, different operation modes and analysis in case of failure. Session work allowed.	1,2,3	System operation analysis, malfunction identification and troubleshooting	Week 14	25 %
Terminal evaluation. Description and functional analysis of all ATA chapters.	Individual exam. Short answers and some multiples choices. Duration 3 hours. No material allowed.	1,2,3	System operation analysis, malfunction identification and troubleshooting	Week 15	35 %
				TOTAL	100 %

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)

8 REQUIRED MATERIAL

All notebook and documentation required will be available on LÉA in PDF format.

9 MEDIAGRAPHY

JAP Inc. « A&P Technician Airframe Test guide », édition 2002, ATP series. 629.134C891aS (Hydraulique. Trains. Carburant. Oxygène. Sécurité. Dégivrage. Pressurisation).

JAP Inc. « A&P Technician Airframe Workbook », édition 2000-2001, ATP series. 629.134353A296 1992 S (Hydraulique. Trains. Carburant. Oxygène. Sécurité. Dégivrage. Pressurisation).

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

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.

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

Students must be present for summative evaluations and must comply with the instructions given by the instructor to carry out the evaluation activity and written in the course outline. Unexcused tardiness for a summative evaluation could result in being excluded from the activity. Any absence from a summative evaluation that is not due to serious reasons (illness, death in the family, etc.) could result in a mark of zero (0) for the activity.

Students are responsible for meeting with the instructor before an evaluation activity is held or immediately upon returning to ENA to explain the reason for an absence. Proper documentation, such as a medical certificate, a death certificate, legal papers, etc., must be shown if the reason for absence is serious and recognized as such by the instructor(s), arrangements will be made between the instructor(s) and the student to make up the activity.

3. Submitting Assignments

All assignments must be submitted by the date, hour and location designated by the instructor(s). Late assignments will be penalized 10% per day that they are late and will receive a mark of zero (0) after one week.

4. Presentation of Written Work

The instructor(s) will provide students with information and guidelines regarding the presentation of written work. When the presentation of an assignment is 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-presentacion-materielle-des-travaux-ecrits-du-cegep/>.

11 METHODS OF COURSE PARTICIPATION

Wearing safety glasses and shoes is mandatory in hangars. Students are expected to follow the rules taught in class regarding the use of equipment and to comply with safety rules related to the operation of aircraft systems and mockups. Improper use or an improper attitude is dangerous and will lead to a suspension from class. Usage of cell phones, MP3, IPOD or cameras are prohibited in class.

By attending online classes through videoconference technology, the student understands that his image and voice may be captured on video in the context of his courses and agrees to this. Videos are only visible during live classes and by the teacher and other participants exclusively. For pedagogical reasons, some courses may be recorded. It is the teacher's responsibility to clearly inform students beforehand when their images and voices are to be captured on video. Any student opposed to his image and/or voice being recorded may turn off his camera and microphone but will be required to participate in writing through means established by the teacher. Otherwise, students who activate their cameras or their microphones are deemed to have agreed to their images and voices being taped. These recordings of courses will be available for the express and sole use of those students registered in the courses for the duration of the semester. It is strictly forbidden to broadcast these recordings in any public manner or to use them other than for pedagogical purposes.

No student may record an online course without prior consent from the teacher. Students whose personal information (voices and images) is captured on video may exercise such remedies as provided by the right to access records and the right of rectification per the Act respecting access to documents held by public bodies and the protection of personal information through the Cegep's Secretary General's Office.

12 OTHER DEPARTMENTAL REGULATIONS

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

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

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

13 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.

14 THE ADAPTED SERVICE CENTER FOR STUDENTS WITH DISABILITIES

Students with a professional diagnosis (motor limitations, neurological, organic, sensory, learning disabilities, mental health disabilities, autism spectrum disorder or others) or with a temporary medical condition can apply for appropriate measures.

To access this service, send your diagnosis either by MIO to "Service, CSA-ENA" or by email to <https://mareussite.cegepmontpetit.ca/ena/mes-ressources/soutien-aux-apprentissages/centre-de-services-adaptes/>.

If you already have an adapted measures plan with the CSA, you are invited to contact your teacher at the start of the session in order to discuss with him the accommodation measures determined by the CSA.

15 APPENDIX

None.