ÉCOLE NATIONALE D'AÉROTECHNIQUE

UNE ÉCOLE AFFILIÉE AU CÉGEP ÉDOUARD-MONTPETIT

280-5B3-EM

FALL 2021

Pre-Flight department

COURSE OUTLINE

COURSE: **Internship on Planes 1**

PROGRAM: 280.C0 Aircraft Maintenance

DISCIPLINE: 280 Aeronautics

WEIGHTING: Theory: 0 Practical Work: 3 Personal Study: 1

Instructor(s)	Office	☎ Extension	✉ Email or Website
Serge Rancourt	B-122	4664	serge.rancourt@ena.ca

OFFICE HOURS FOR STUDENTS

	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
Morning					
Afternoon					
Others					

Dep. Coordinator(s)	Office	☎ Extension	✉ Email or Website
Goudreault, Éric	C-160	4691	eric.goudreault@ena.ca
Arpin, Stéphanie	C-160	4630	stephanie.arpin@ena.ca

1. CONTEXTE OF THIS COURSE IN THE PROGRAM

This course is situated in the program's fifth semester.

Please note that this course is an absolute prerequisite for course 280-6A4-EM. All students enrolled in this program are called upon in one way or another to perform aircraft inspection activities.
In this course, inspection activities will be held in the hangar or on the tarmac and will be carried out on different types and models of planes. These activities are planned to allow students to develop skills leading to the mastery of working techniques in aeronautical maintenance and more specifically, related to aircraft inspection. In addition to getting students to apply inspection procedures, the proposed activities will develop the skills expected of researching technical manuals, planning and organization of work, finding anomalies, but also, technical writing specific to the aeronautical maintenance field. Mastery of all of these elements will enable students to fulfill the function of the course of performing activities relating to the inspection of 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)

To master the aeronautic maintenance work technics.

3. MINISTERIAL OBJECTIVE(S) AND COMPETENCIES

026D To perform activities related to inspecting airplanes and helicopters.

4. TERMINAL OBJECTIVE OF THE COURSE (Final course OBJECTIVE)

At the end of the course, the student will be able to plan and perform inspections on the aircraft according to a methodology and an inspection work technique adapted to the aeronautical standard.

5. TEACHING AND LEARNING STRATEGIES

Using inspection directives, students carry out maintenance tasks on an aircraft using the maintenance manual as a source of technical information.

Prior classes, students will have to prepare their activities by answering questions related to their weekly task. Technical documentations will be accessible through a wed link given by their teacher. All classes will be given in school.

Real and simulated scenarios are very important in this course. Students work in teams of two or three.

Before any summative evaluations, students will have had a formative evaluation to maximize the opportunity to succeed.

The course is offered in a intensive formula at a rate of 4 hours per week for 12 weeks.

6. COURSE PLANNING

Learning objectives:

1. Conduct research in technical manuals
2. Plan and organize the work load
3. Apply inspection procedures
4. Identify defects
5. Record information

WEEK	LEARNING OBJECTIVES	CONTENT	OPERATING MODE AND LEARNING ACTIVITIES	RESOURCES, DOCUMENTS, TECHNOLOGY TOOLS AND URL LINKS
1	1-2-5	- Course presentation - Hangars visit - Inspection presentation	- Having access to hangars, to computer stations and to his teacher, the student will have to work from the instructions issued in his student documents. - The course is scheduled to last 4 hours	All documents from LEA
2	1-2-3-4-5	Daily inspection		
3	1-2-3-4-5			
4	1-2-3-4-5			
5	1-2-5	Exam 1	– Having access to a computer station, without his notes, the student will have to demonstrate that he or she has mastered the concepts practiced since the beginning of the session. – A study guide is made available to students on LÉA – The evaluation period is scheduled to last 3 hours	
6	1-2-3-4-5	Compression and ignition check	- The group will be divided so that part of the students work on inspecting the engine tightness (compression) and the other part on inspecting the ignition system. The following week, the roles will be reversed. – Classes are scheduled to last 4 hours	
7	1-2-3-4-5			
8	1-2-3-4-5	Cockpit familiarisation and marshling	- During the same period of the course, the group will be divided so that part of the students work on the inspection of the engine controls while other students will make sure to prepare for the next class for the ground run. Rotations will take place when the positions become available. – Classes are scheduled to last 4 hours	
9	1-2-3-4-5	Exam 3 and ground run	- The group will be divided so that a part of the students makes the fixed points during this period.	
10	1-2-3-4-5	Wheel inspection	– From the instructions given in the "wheel" notebook, the students will have to perform the work related to the inspection of an aircraft wheel. – The course is scheduled to last 4 hours	
11	1-2-3-4-5	Inspection exercise	An exercise related to inspection planning will be done	
12	1-2-3-4-5	Exam 3	From the proposed scenario, the student. will need to plan and perform an inspection to determine the condition of part of an aircraft. – The scenario is made available well in advance of the assessment – The student has to prepare before arriving in class – The evaluation period is scheduled to last 3 hours	

7. SYNTHESIS OF SUMMATIVE EVALUATION METHODS

Activity Evaluation Description	Learning context and method of evaluation	Learning Objective(s)	Evaluation criterias	Due Date (approximate date assignment due or exam given)	Weighting (%)
- Research in manuals. - Research on Aventech. - TC Research. - Inspection activities on aircraft. * -Writen exam on inspection. -Writen exam on what and where to inspect: - AC-20-106 / AC-43-13	- Individual. - From scenario. - Written exam includes a theoretical part, research and multiple choices. - Practical Examination includes a research part (standard) and an inspection part. *	1-2-5	Accurate identification and exact anomalies description. Usage of proper reference for proper standard. Relevance and precision of the answer according to the course standard. Accuracy of the answer according to the course standard. Proper answer according to course standard.	Week 5	20%
-Perform a ground run. -Perform marshling. - Written and practical exam. (Ground run preparation guide, available on LÉA)	- Individual. - Written exam on standards and emergency procedure. - From scenarios while performing ground run.	1-2-3	-Pertinence and accuracy of the answer according to the course standard. -Understanding checks. -Understanding of the steps. -Appropriate execution of the procedure. -Interpretation of the parameters of the systems according to the standards. -Understanding and execution of marshling.	Before and during the ground run	10%
Evaluation of written reports acquired during Activities 2 to 11.	Individually - Based on a scenario seen during all activities	1-5	Conform to model. Accurate description. Respect the presentation standard. Accurate identification and exact anomalies description. See table 1 and Appendix 1	Week 12	20% 20%
Research, inspection and written exam on activities 1 through 11.	- Individual. - From scenario. - Written exam includes a theoretical part, research and multiple choices. - Practical Examination includes a research part (standard) and an inspection part.	1-2-3-4-5	See Appendix 2	Week 12	30%

TOTAL : 100%

Table 1: List of Competencies Evaluated During Pedagogical Activities:

Competency	Description	Weighting (%)
The ability to implement health and safety rules.	Clothing, tools, personal protection and equipment.	20%
The ability to follow and respect standards and specifications.	Maintenance manuals, CAR, AC43.13, airworthiness directives, service bulletins, advisory cirulars	20%
The ability to evaluate the serviceability of components and systems.	Structural components, mechanical components, electrical components	20%
The ability to identify defects (snags).	Fuselage, wing, tail group, flight control surfaces, engines, landing gear, systems	20%
The ability to use equipment and tools appropriately.	Hand tools, electric tools pneumatic tools, equipment used for aircraft maintenance	10%
The ability to store and clean the work area.	Manuals, tools, aircraft components, workshop equipment	10%

8. REQUIRED MATERIAL

None.

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).

10. 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:

http://guideena-en.cegepmontpetit.ca/department-rules/
https://mareussite.cegepmontpetit.ca/ena/mon-parcours/mon-programme/regles-departementales

(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 inacceptable, 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://rmsh.cegepmontpetit.ca/normes-de-presentation-materielle-des-travaux-ecrits-du-cegep/.

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-en.cegepmontpetit.ca/department-rules/
  https://mareussite.cegepmontpetit.ca/ena/mon-parcours/mon-programme/regles-departementales

11. METHODS OF COURSE PARTICIPATION

SECURITY MEASURES IN THE HANGARS

1. Student participating in a training, maintenance or manufacturing activity in the hangar or workshop must wear safety shoes, ENA work clothes and safety glasses at all times.
2. Smoking is prohibited in the school and ramp area.
3. Sitting on benches or machines is prohibited.
4. Machines must not be used without authorization from the instructor.
5. Caps or hairnets must be worn for long hair when working with the machinery.
6. The machinery and benches must be cleaned after use.
7. Clean workshop and work area used after every classes.
8. No one may circulate in the hangar unless authorized.
9. No visitors are allowed without authorization.
10. Watches, rings and neck chains must be removed before every classes.
11. Do not start any maintenance activities if you are not familiar to the equipment used. Ask your teacher or hangar technician in case of doubt.

12. DEPARTEMENTAL REGULATIONS

Students are encouraged to consult the website for the specific regulations for this course:
http://guideena-en.cegepmontpetit.ca/department-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 (CSA) - 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 accomodations.

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

https://mareussite.cegepmontpetit.ca/ena/mes-ressources/soutien-aux-apprentissages/centre-de-services-adaptes/.

15. APPENDIX 1

Evaluation of competencies (week 2 to 11)

Competencies	Excellent	Well done	Acceptable	Inadequate
The ability to implement health and safety rules.	2 All safety rules were followed.	1 Most safety rules were followed.	.5 Some safety rules were not followed during the procedure.	0 Task was stop due to safety reasons.
The ability to follow and respect standards and specifications.	2 All standard and specifications were respected.	1 Most standard and specifications were respected.	.5 Some standard and specifications were not followed	0 Standard and specifications were not followed.
The ability to evaluate the serviceability of components and systems.	2 The condition of the components or systems were well evaluated using the proper technical documents.	1 Most components or systems were well evaluated using the proper technical documentation.	.5 The conditions of some components and systems were not supported by the proper technical pubs.	0 Not able to determine the serviceability of the components or systems.
The ability to identify defects (snags).	2 All anomalies were found, and reports were filled.	1 Most anomalies were found, and some were reported.	.5 Some anomalies were found and or some were reported.	0 None of the anomalies were found or no report written.
The ability to use equipment and tools appropriately.	1 All specil tools and materials were used properly	.5 Most tools and equipments were used properly.	.25 Some specialized tools and equipments were not used.	0 The task was stop due to safety issue when using tools or equipments.
The ability to store and clean the work area.	1 Area cleaned, and equipment stored.	.5 Some Fod, garbage or debrit found around the plane used for the activity.	.25 Some Fod and equipment were forgotten.	0 The area was a mess.

APPENDIX 2

Final exam (week 12)

Carry out an inspection in accordance with the procedures:

	Excellent	Well done	Acceptable	Inadequate
Retrieving information	5 All information is correctly extracted and the color code is respected.	4 All information is extracted correctly but the color code is not respected.	3 The information is just enough to make a quick inspection.	0 It is not possible to perform the inspection using the information provided.
Processes and tools	10 All the elements necessary for the inspection are used.	8-9 Almost all the elements required for the inspection are used.	6-7 The minimum elements required for inspection is used.	0 The elements necessary for the inspection were not properly and / or underused.
Finding anomalies	35 All planned anomalies were found.	30 One of the planned anomalies wasn't found.	25 Two planned anomalies were not found.	0 The inspection is not conclusive.

Planning an inspection:

	Excellent	Well done	Acceptable	Inadequate
Planning	30 All steps were there. The chronology is good. All references are accurate.	25 All these steps are there. The chronology is problematic. The references are all accurate.	20 It would be possible for an experienced technician to do the work but A step is missing and / or The chronology is problematic and / or The references are not accurate.	0 It is not possible to do the job by completing the planned steps.
Material	10 All special tools and materials are mentioned.	8 Almost all specialized tools and almost all materials are mentioned	6 Most specialized tools and most of the equipment mentioned	0 It is not possible to do the job due to lack of equipment.
Helth, safety and environement	10 All items are listed.	8 Almost all elements are indicated.	6 Most items are indicated.	0 None of the important elements are mentioned.