



Course outline

COURSE TITLE: **Internship on Planes 2**

PROGRAM: 280.C0 Aircrafts Maintenance



DISCIPLINE: 280 Aeronautics

WEIGHTING: *Theory: 0 Practice: 4 Personal Study: 1*

| 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 |
|------------------|--------|---|--|
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1 CONTEXT OF THIS COURSE WITHIN THE PROGRAM

- By the end of this course, students will have developed the following objectives:

- Find the necessary information from the entire technical library and demonstrate an understanding of the procedures required to carry out maintenance on an aircraft.
- Check the operating parameters of an electrical, mechanical, or hydraulic component according to the standards of the manufacturers.
- Evaluate a component to determine its aeronautical condition in compliance with the manufacturer's strict standards.
- Perform maintenance and inspections on electrical, hydraulic, or mechanical and structural systems according to a predetermined maintenance schedule recommended by the manufacturer.
- Analyze the aerodynamic and dynamic behavior of an aircraft and its rotary components according to strict rules of operation and safety.

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 aircrafts

3 MINISTERIAL OBJECTIVE(S) AND COMPETENCIES

026E Perform activities related to aircrafts maintenance

4 TERMINAL OBJECTIVE OF THE COURSE (FINAL COURSE OBJECTIVE)

At the end of the course, the student will be able to demonstrate a methodology and techniques of maintenance work around and on aircrafts as per the applicable standards

5 TEACHING AND LEARNING STRATEGIES

The work is carried out in teams of two or three participants. The activities will take place alternately depending on the availability of the aircraft. Each week, the students will carry out their internship by observing the proper operation and safety around the aircrafts and all around the workplace.

During the semester, the teacher will create the different teams in a rotation pattern for the different activities and the weekly schedule will be available on LÉA. Students MUST look at the following document: [WEEKLY SCHEDULE WITH TEAMS AND ACTIVITIES](#)

For each activity, a work order will need to be filled out individually and handed to the teacher before the end of each course.

6 COURSE PLAN

LEARNING OBJECTIVES

1. Find the proper information to execute the maintenance activities on the different aircrafts through all the technical documentation available and demonstrate the understanding of the procedures given by the manufacturers.
2. Verify the parameters on the functioning of different electrical components, mechanical components, or hydraulic components as per the manufacturer's standards.
3. Evaluate different components to determine their aeronautical conditions as per the manufacturer's standards.
4. Execute the servicing, the inspections or the replacement of different components based on a predetermined calendar or not as per the manufacturer's recommendation on different systems and different aircrafts.
5. Analyse the aerodynamic and mechanical behavior of an aircraft as per strict functioning rules and respect all the safety rules.

INTERNSHIP

| WEEK | OBJECTIVE # | CONTENT | MODE OF INSTRUCTION AND LEARNING ACTIVITIES | DOCUMENTATIONS, RESOURCES, TECHNOLOGICAL TOOLS AND URL ADDRESS |
|-------------------------------------|-------------|--|---|---|
| 1 | 1,2,3,4 | <ul style="list-style-type: none"> - Presentation of all the documentation by the teacher. - Presentation of the hangar's safety measures. - Familiarisation activity on aircraft. | <ul style="list-style-type: none"> - Presentation of the documentation on a screen. - Hangar visit. - Jacking, brake bleeding and gear retraction on Piper Navajo or Piper Aztec. | <ul style="list-style-type: none"> - All the work orders are available on LÉA. - Access to the technical library on the school's computers. |
| 2* 3* 4* | 1 to 5 | <ul style="list-style-type: none"> - Planned maintenance activities on different aircrafts. - Each activity will be performed in a rotation pattern as per the weekly schedule created by the teacher. | <ul style="list-style-type: none"> - Accumulator servicing on the Challenger CL601 FBEI - Spoilers functional check on the Challenger CL601 FBEI - Removal, inspection, and installation of the pressurisation outflow valves on the Piper Navajo GAFG | <ul style="list-style-type: none"> - All the work orders are available on LÉA. - Access to the technical library on the school's computers - Technical record document is available on LÉA |

| WEEK | OBJECTIVE # | CONTENT | MODE OF INSTRUCTION AND LEARNING ACTIVITIES | DOCUMENTATIONS, RESOURCES, TECHNOLOGICAL TOOLS AND URL ADDRESS |
|-----------|-------------|---|--|---|
| 5* | 1 to 5 | <ul style="list-style-type: none"> – Unplanned maintenance activity | <ul style="list-style-type: none"> – Removal, inspection, lubrication, and installation of a piston engine propeller Aerocommander FASL | <ul style="list-style-type: none"> – All the work orders are available on LÉA. – Access to the technical library on the school's computers - Technical record document is available on LÉA |
| 6* | 1 to 5 | <ul style="list-style-type: none"> – Planned maintenance activity on an aircraft | <ul style="list-style-type: none"> – Torque check of the Flaps drive flex shafts on the Challenger CL601 FBEI | <ul style="list-style-type: none"> – All the work orders are available on LÉA. – Access to the technical library on the school's computers - Technical record document is available on LÉA |
| 7* | 1 to 5 | <ul style="list-style-type: none"> – Planned maintenance activity on an aircraft | <ul style="list-style-type: none"> – Perform a compass swing on the Cirrus SR22 | <ul style="list-style-type: none"> – All the work orders are available on LÉA. – Access to the technical library on the school's computers – Technical record document is available on LÉA |
| 8* | 1 to 5 | <ul style="list-style-type: none"> – Planned maintenance activity on an aircraft | <ul style="list-style-type: none"> – Perform a landing gear oleo servicing on the Piper Navajo GAFG | <ul style="list-style-type: none"> – All the work orders are available on LÉA. – Access to the technical library on the school's computers – Technical record document is available on LÉA |

| WEEK | OBJECTIVE # | CONTENT | MODE OF INSTRUCTION AND LEARNING ACTIVITIES | DOCUMENTATIONS, RESOURCES, TECHNOLOGICAL TOOLS AND URL ADDRESS |
|------------|-------------|---|---|---|
| 9* | 1 to 5 | <ul style="list-style-type: none"> – Unplanned maintenance activity | <ul style="list-style-type: none"> – Unplanned maintenance on different components and different aircrafts. – The tasks will be given by the teacher. – Perform the follow-up of the work. | <ul style="list-style-type: none"> – Tasks will be available in a binder in the A21 classroom. – Access to the technical library on the school's computers – Technical record document is available on LÉA |
| 10* | 1,2 and 5 | <ul style="list-style-type: none"> – Preparation for a test flight and verification of the aircraft's performance – Perform the test flight | <ul style="list-style-type: none"> – In rotation, perform a test flight on the Cessna 172 | <ul style="list-style-type: none"> – All the work orders are available on LÉA. – Access to the technical library on the school's computers – Technical record document is available on LÉA |
| 11* | 1 to 5 | <ul style="list-style-type: none"> – Unplanned maintenance activity | <ul style="list-style-type: none"> – Unplanned maintenance on different components and different aircrafts. – The tasks will be given by the teacher. – Perform the follow-up of the work. | <ul style="list-style-type: none"> – Tasks will be available in a binder in the A21 classroom. – Access to the technical library on the school's computers – Technical record document is available on LÉA |
| 12* | 1 to 5 | <ul style="list-style-type: none"> – Aircraft towing and mooring | <ul style="list-style-type: none"> – Execute the towing and mooring of an aircraft. Towing with 2 pivot points and 1 pivot point. – Work as a team with marshalls | <ul style="list-style-type: none"> – A towing video will need to be watched. – Towing tugs will be available at the hangar |

| WEEK | OBJECTIVE # | CONTENT | MODE OF INSTRUCTION AND LEARNING ACTIVITIES | DOCUMENTATIONS, RESOURCES, TECHNOLOGICAL TOOLS AND URL ADDRESS |
|-----------------------|-------------|---|--|--|
| 13 * | 1 to 5 | <ul style="list-style-type: none"> Planned maintenance activity on an aircraft | <ul style="list-style-type: none"> Perform a turboprop engine start and shut down. Perform the verification of different parameters during the run-up. Perform the taxiing of a turboprop aircraft. Analyse the performance of a turboprop engine. | <ul style="list-style-type: none"> All the work orders are available on LÉA. Access to the technical library on the school's computers Technical record document is available on LÉA |
| 14 | 1 to 5 | <ul style="list-style-type: none"> PRACTICAL FINAL EXAM INDIVIDUAL EXAM | <ul style="list-style-type: none"> Perform a maintenance task on an aircraft. | <ul style="list-style-type: none"> The work order will be provided by the teacher. Access to the technical library on the school's computers Technical record document is available on LÉA. |
| 15 | 1 to 5 | <ul style="list-style-type: none"> THEORETICAL FINAL EXAM INDIVIDUAL EXAM | <ul style="list-style-type: none"> Written exam on all activities performed during the semester. Research in the technical manuals of the different aircrafts. Short answer and multiple choices questions with predetermined scenarios. | <ul style="list-style-type: none"> Access to the technical library on the school's computers The exam paper copy will be provided by the teacher. |

***BE AWARE THAT ALL THE ACTIVITIES FROM WEEK 2 TO WEEK 13 COULD BE CHANGED AT ANY TIME DEPENDING ON THE AIRCRAFT'S AVAILABILITY OR IF ANY DEFECTS OCCUR TO AN AIRCRAFT. WE COULD HAVE MULTIPLE CLASSES AT THE SAME TIME, SO YOUR TEACHER WILL COMMUNICATE TO YOU THE POSSIBLE CHANGES AS WE PROGRESS DURING THE SEMESTER.**

7 SYNTHESIS OF SUMMATIVE EVALUATION METHODS

| Description of the evaluation activities | Context of the evaluations | Learning objectives | Evaluation criterias | Due dates (approx) | Weighting(%) |
|--|---|---------------------|--|---|---------------|
| Competencies and performances evaluation during the activities. | The students will perform the activities within a team but will be individually evaluated on their competencies and performances. | 1 to 5 | The descriptive scale evaluation grid is available on LÉA | Formative evaluation weeks 1 to 4 and 8 Summative evaluations weeks 5, 7, 11 ,12, 13 | 35 % |
| Technical record evaluation for the work performed | The work orders will need to be completed for all the activities as per the technical record document available on LÉA | 1 to 5 | The descriptive scale evaluation grid is available on LÉA. | Formative evaluation Weeks 1 to 4 and 8 Summative evaluations Weeks 5, 6 et 13 | 15 % |
| Terminal Evaluation THEORETICAL | <ul style="list-style-type: none"> – Written exam on all activities performed during the semester. – Research in the technical manuals of the different aircrafts. <p>Short answer and multiple choices questions with predetermined scenarios.</p> <p>(4 hours)</p> | 1 to 5 | <p>Proper finding and reporting of the defects.</p> <ul style="list-style-type: none"> - Use the proper references from the technical library. - Precision of the answer based on the applicable standards. - Proper completion of the questions. | <p>Week 14 or 15</p> <p>Based on the availability of the aircraft for the practical exam</p> | 20 % |

| | | | | | |
|--|--|--------|---|-------------------------|--------------|
| Terminal Evaluation PRACTICAL | Practical exam based on a predetermined maintenance activity. (1 hour) | 1 to 5 | Finding of the proper procedures in the manuals. | Week 14 or 15 | 30 % |
| | Complete the work order as per the technical record document. (30 minutes) | | Execute the maintenance task as per the procedures. | | |
| | | | | TOTAL | 100 % |

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/3fjUJDC>

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://rmsh.cegepumontpetit.ca/normes-de-presentacion-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.cegepumontpetit.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/department-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-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.

15 ANNEX