

Course outline

COURSE: **Internship on Helicopter 1**

PROGRAM: 280.C0 Aircraft Maintenance

DISCIPLINE: 280 Aeronautics

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

Teacher (s)	Office	☎ extension	✉ e-mail or website
Louis Guimont	<u>B-125</u>	<u>4703</u>	louis.guimont@ena.ca
Serge Rancourt	<u>B-122</u>	<u>4664</u>	serge.rancourt@ena.ca

Office hours for students

	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
Morning					
Afternoon					
Other					

Dep. Coordinators(s)	Office	☎ Extension	✉ email
Éric Goudreault	<u>C-160</u>	<u>4691</u>	eric.goudreault@ena.ca
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1 CONTEXT OF THIS COURSE WITHIN THE PROGRAM

This course is situated in the fifth program semester.

By the end of this course, students will have developed the ability to:

- conduct research in technical manuals
- apply inspection procedures
- identify defects (snags)
- record information
- determine the maintenance schedule

This course is a mandatory pre-requisite for the 280-6B4-EM course.

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 helicopter inspections according to a methodology and inspection work technique adapted to the aeronautical standard.

5 TEACHING AND LEARNING STRATEGIES

Through an inspection directive, students carry out a maintenance task on an aircraft using the maintenance manual as a reference.

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

In this course, emphasis will be put on real and simulated scenarios. 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.

This is a 45 hour course given over a period of twelve weeks. The duration of each course will be as follows:

Week 1: 2 hours (introduction to internship)

Week 2-11: 4 hours (internships)

Week 12: 3 hours (practical exam)

For a total of 45 hours.

6 COURSE PLAN

LEARNING OBJECTIVES

GOALS	Week
1. Use the appropriate documentation for the different activities.	All
2. Plan and carry out the different activities in an efficient and coordinated way, respecting the health and safety rules.	2 to 11
3. Inspect components and systems.	2 to 11
4. Keep working area clean and safe.	2 to 11

WEEK	# OBJECTIVE	CONTENT	MODE OF INSTRUCTION AND LEARNING ACTIVITIES	DOCUMENTATIONS, RESOURCES, TECHNOLOGICAL TOOLS AND URL ADDRESS
1	1	Introduction	Face-to-face	All technical documents From school
2	1, 2, 3, 4	Activity 1: Main Rotor 300 CAL		
3	1, 2, 3, 4	Activity 2: Nylatron sleeves & tailboom inspection 206L BHT		
4	1, 2, 3, 4	Activity 3: Oil flow mesurment / free wheel 500 GNY		
5	1, 2, 3, 4	Activity 4: Tail rotor rigging 300 CAL		
6	1, 2, 3, 4	Activity 5: Tail rotor drive shaft damper 500 GNY		
7	1, 2, 3, 4	Activity 6: Compressor wash H120 LSP (formative)		
8	1, 2, 3, 4	Activity 7: Daily inspection H125 VYL (formative)		
9	1, 2, 3, 4	Activity 8: Tail rotor inspection H125 IAQ (formative)		
10	1, 2, 3, 4	Activity 9: 100 hours inspection R44 MIX		
11	1, 2, 3, 4	Activity 10: Tail rotor gear box 206B JPL (formative)		
12	1, 3, 4	Exam		

7 SYNTHESIS OF SUMMATIVE EVALUATION METHODS

Description of Evaluation Activity	Context	Learning Objective(s)	Evaluation Criteria	Due Date (approximate date assignment due or exam given)	Weighting (%)
Participation to 6 of the listed activities.	Work will be performed in teams of 2 or 3, while evaluation will be done individually.	All	See appendix 1	Between Weeks 2 and 11	10% per activity for a total of 60%
Written and practical Exam: - Gather all information - Plan work - Proceed to inspection - Safetying	Individually. - Written exam including theory part, research, multiple choice and short answers. - Practical Exam on assembly safety	All	- Use the proper reference to trace a standard, a procedure and a part. - Accuracy of the answer (PCM) according to the course standard. - Pertinence and accuracy of the answer according to the course standard. - Completeness of the answer according to the course standard. - Understanding of actions. - Manufacturer standards.	Week 12	40%
				TOTAL:	100%

8 REQUIRED MATERIAL

None.

9 MEDIAGRAPHY

Acceptable Methods, Techniques, and Practices - Aircraft Inspection and Repair EA-AC 43.13-1A/2A, Department of Transportation (FAA), ©1989, 410 pages.

Shafer Joseph, *Basic Helicopter Maintenance*, Riverton International Aviation, ©1980.

Aircraft Hardware Standards Manual and Engineering Reference, Stanley J. Dyik, 138 pages.

Airworthiness Manual, Transport Canada, Canadian Government Publishing Center, 1986, Ottawa.

Applicable Maintenance Manual.

AC65-9A: *Airframe & Powerplant Mechanics, General Handbook*, U.S. Department of Transportation, Federal Aviation Administration (FAA), 1976, 549 pages.

Video: "Ground run".

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.

<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 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.cegepmontpetit.ca/normes-de-presentation-materielle-des-travaux-ecrits-du-cegep/>.

11 METHODS OF COURSE PARTICIPATION

SECURITY MEASURES IN THE HANGARS

1. Access to the hangar is forbidden to students without ÉNA's recommended clothings. (Polo and pants highly recommended).
2. Prohibition of sitting on workbenches or aircraft.
3. Safety shoes are mandatory at all times. (Sandals prohibited)
4. Safety glasses mandatory for working on aircraft.
5. Clean aircraft and workbenches after use.
6. Clean the location of your aircraft after each lesson.
7. Cell "PROHIBITED" in the hangar.
8. Movement in the hangar prohibited to unauthorized persons.
9. No visitors without permission.
10. Strictly forbidden to use the overhead crane.
11. COVID-19 Wearing the procedural mask is mandatory during activities that require social distancing to be less than 1.5 meters. The mask will be provided by the Cégep
12. COVID-19 Equipments must be disinfected by students BEFORE they are used (Tools, computer, etc.)

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 POLITIQUES ET RÈGLES INSTITUTIONNELLES

All students enrolled at Cégep Édouard-Montpetit must become familiar with and comply with the institutional policies and regulations. In particular, these policies address learning evaluations, maintaining admission status, French language policies, maintaining a violence-free and harassment-free environment, and procedures regarding student complaints. The French titles for the 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".

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

15 ANNEX

EVALUATION GRID 280-5C3-EM / FALL 2021

See next pages.

EVALUATION GRID 280-5C3-EM / FALL 2021

INFORMATION Summary of procedures. Good manual. Good tightening torque.	PROCEDURE Precise application. Use good software. Chronology. Understanding and correct interpretation.	ACCOMPLISHMENT Rigorous judgment of work priorities and judicious choice of operations to be carried out. Precise execution. Problem solving. Quality of work.	TOOLS / EQUIPMENT Appropriate preparation of equipment and work area. Choice of tools and appropriate use.	CLEANING Work area. Aircraft. Hazardous Material.	SECURITY Glasses. - 1 Shoes. - 1 Uniform. - 1 Task execution leading to obvious danger. - 5
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TEAM:		INTERNSHIP 280-553-EM			GROUP:	NOTE
MAIN ROTOR 300 CAL						
Information /3	Procedure /2	Accomplishment /3	Tools / Equipment /1	Cleaning /1		
Comments: _____						
Nylatron sleeves and tailboom inspection 206L BHT						
Information /3	Procedure /2	Accomplishment /3	Tools / Equipment /1	Cleaning /1		
Comments: _____						
Oil flow mesurment / free wheel 500 GNY						
Information /3	Procedure /2	Accomplishment /3	Tools / Equipment /1	Cleaning /1		
Comments: _____						
Tail rotor rigging 300 CAL						
Information /3	Procedure /2	Accomplishment /3	Tools / Equipment /1	Cleaning /1		
Comments: _____						
Tail rotor drive shaft damper 500 GNY						
Information /3	Procedure /2	Accomplishment /3	Tools / Equipment /1	Cleaning /1		
Comments: _____						

EVALUATION GRID 280-5C3-EM / FALL 2021

INFORMATION Summary of procedures. Good manual. Good tightening torque.	PROCEDURE Precise application. Use good software. Chronology. Understanding and correct interpretation.	ACCOMPLISHMENT Rigorous judgment of work priorities and judicious choice of operations to be carried out. Precise execution. Problem solving. Quality of work.	TOOLS / EQUIPMENT Appropriate preparation of equipment and work area. Choice of tools and appropriate use.	CLEANING Work area. Aircraft. Hazardous Material.	SECURITY Glasses. - 1 Shoes. - 1 Uniform. - 1 Task execution leading to obvious danger. - 5
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Compressor wash H120 LSP (Formative)					
Information /3	Procedure /2	Accomplishment /3	Tools / Equipment /1	Cleaning /1	
Comments: _____					

Daily inspection H125 VYL (Formative)					
Information /3	Procedure /2	Accomplishment /3	Tools / Equipment /1	Cleaning /1	
Comments: _____					

Tail rotor inspection H125 IAQ (Formative)					
Information /3	Procedure /2	Accomplishment /3	Tools / Equipment /1	Cleaning /1	
Comments: _____					

100 hours inspection R44					
Information /3	Procedure /2	Accomplishment /3	Tools / Equipment /1	Cleaning /1	
Comments: _____					

Tail rotor gear box (Formative)					
Information /3	Procedure /2	Accomplishment /3	Tools / Equipment /1	Cleaning /1	
Comments: _____					

Name: _____		Name: _____		Name: _____		Health and safety When a student does not comply with the health and safety rules that govern activities in the ÉNA hangars or when the teacher considers that the work performed is dangerous for theft, the teacher adjusts the mark accordingly in a negative manner.
/ 60%	/ 30%	/ 10%	/ 60%	/ 30%	/ 10%	
Total: / 100%		Total: / 100%		Total: / 100%		