ÉCOLE NATIONALE D'AÉROTECHNIQUE

UNE ÉCOLE AFFILIÉE AU CÉGEP ÉDOUARD-MONTPETIT

280-5C3-EM

FALL 2023

Pre-Flight Department

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**
Stéphane Caron	B-122	4648	Stephane.caron@cegepmontpetit.ca

Office hours for students

	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
Morning					
Afternoon					
Other					

Dep. Coordinators(s)	**Office**	☏ **Extension**	✉ **email**
Serge Rancourt	C-160	4664	Serge.Rancourt@ena.ca
Joaquin Mora	C-160	4220	joaquin.mora@ena.ca

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

At the beginning of the semester, each student will receive his activity schedule from the list of activities planned for the course. A rotation of exercises is planned for adequate aircraft availability. Students work in teams of two or three.

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)

6 COURSE PLAN

LEARNING OBJECTIVES

1. Use adequate technical documentation for the different activities.
2. Plan and carry out the various activities in an efficient and coordinated manner while respecting health and safety rules.
3. Inspect components and/or systems.
4. Keep working area clean and safe.

WEEK	OBJECTIVE #	CONTENT	MODE OF INSTRUCTION AND LEARNING ACTIVITIES	DOCUMENTATIONS, RESOURCES, TECHNOLOGICAL TOOLSAND URL ADDRESS
1	1,2,3,4	***Course outline and hangar introduction***	In school.	We will use technical documents and helicopters in the hangar.
2	1,2,3,4	***Main Rotor (sommatif)***	In school, main rotor thrust bearing inspection.	We will use the Hughe 300 CAL technical documentations and hangar tools.
3	1,2,3,4	***Nylatron sleeve and tailboom removal (sommatif)***	In school, tail rotor control tube inspection.	We will use the Bell 206 JPL technical documentations and hangar tools.
4	1,2,3,4	***Oil flow check / Oil level checkfree wheel (sommatif)***	In school, engine oil flow check and freewheel oil level check.	We will use the Hughe 500 GNY technical documentations and hangar tools. .
5	1,2,3,4	– ***Tail rotor rigging (sommatif)***	– In school, a full tail rotor rigging inspection.	– We will use the Hughe 300 CAL technical documentations and hangar tools.

6	1,2,3,4	***Free internship 1 (formative)***	In class, using the helicopter related to the task asked.	We will use the technical documentations and hangar tools.
7	1,2,3,4	***Compressor wash (formatif)***	In school, inspection and compressor wash.	We will use the Airbus H120 LSP technical documentations and hangar tools.
8	1,2,3,4	***Daily inspection (formatif)***	In school, daily inspection and quizz related to helicopter ground saftey rules video.	We will use the Airbus H125 VYL technical documentations and hangar tools.
9	1,2,3,4	***Tail rotor (sommatif)***	In school, tail rotor spare inspection.	We will use the Airbus H125 IAQ technical documentations and hangar tools.
10	1,2,3,4	***100 hours inspection (sommatif)***	In school, Periodic inspection to be carried out.	We will use the R-44 MIX technical documentations and hangar tools. .
11	1,2,3,4	***Free internship 2 (formatif)***	In class, using the helicopter related to the task asked.	We will use the technical documentations and hangar tools.
12	1,2,3,4	***Final exam***	In class, individually, questions, inspection to be carried out and lockwire/cutter pins to be donne.	We will use the technical documentations and hangar tools..

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

All documents required for the course will be available on the LÉA platform.
Safety glasses and shoes are always mandatory in the laboratories/hangars.
In addition, ÉNA students must wear ÉNA-branded clothing when they visit the laboratories and hangars.
The authorized pants are either work pants or jeans in good condition (no decoration: studs, metal parts, etc. will be accepted)
Wearing a hooded sweater including a cord is not authorized, because there is an SST risk with the equipment or a machine.

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 Publising 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% (PIEA article 5.1m).

2. Attendance for Summative Evaluations

The activities participation in mandatory (PIEA 5.2.5.1)

3. Homework

The work required by a professor must be submitted on the date, at the place and at the time fixed.

Penalties resulting from delays are established according to departmental rules (PIEA, article 5.2.5.2). In case of delay, the

departmental penalties are: Loss of 10% per day of delay, the note "0" will be awarded after 6 days.

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

4. Presentation of Written Work

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 work required by a professor must be submitted on the date, at the place and at the time fixed.

Penalties resulting from delays are established according to departmental rules (PIEA, article 5.2.5.2). In case of delay, the

departmental penalties are: Loss of 10% per day of delay, the note "0" will be awarded after 6 days

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

5. Plagiarism

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.

e) 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

SECURITY MEASURES IN THE HANGARS

5. Access to the hangar is forbidden to students without ÉNA's recommended clothings. (Polo and pants highly recommended).
6. Prohibition of sitting on workbenches or aircraft.
7. Safety shoes are mandatory at all times. (Sandals prohibited)
8. Satefy glasses mandatory for working on aircraft.
9. Clean aircraft and workbenches after use.
10. Clean the location of your aircraft after each lesson.
11. 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.

12 OTHER DEPARTMENTAL REGULATIONS

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

13 POLITIQUES ET RÈGLES INSTITUTIONNELLES

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 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 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”.
Students already registered with the CSA must communicate with their teachers at the beginning of the semester to discuss those accomodations they have been awarded by the CSA.

15 ANNEX

EVALUATION GRID 280-5C3-EM / FALL 2022

See next pages.

ANNEX

EVALUATION GRID 280-5C3-EM / FALL 2021

INFORMATION	**PROCEDURE**	**ACCOMPLISHMENT**	**TOOLS / EQUIPMENT**	**CLEANING**	**SECURITY**
Summary of procedures. Good manual. Good tightening torque.	Precise application. Use good software. Chronology. Understanding and correct interpretation.	Rigourous judgment of work priorities and judicious choice of operations to be carried out. Precise execution. Problem solving. Quality of work.	Appropriate preparation of equipment and work area. Choice of tools and appropriate use.	Work area. Aircraft. Hazardous Material.	Glasses. - **1** Shoes. - **1** Uniform. - **1** Task execution leading to obvious danger. – **5**

TEAM:	**INTERNSHIP 280-553-EM**	**GROUP:**	**NOTE**

MAIN ROTOR 300 CAL

Information	**Procedure**	**Accomplishment**	**Tools / Equipment**	**Cleaning**
/3	**/2**	**/3**	**/1**	**/1**

Comments: _____

Nylatron sleeves and tailboom inspection 206L BHT

Information	**Procedure**	**Accomplishment**	**Tools / Equipment**	**Cleaning**
/3	**/2**	**/3**	**/1**	**/1**

Comments: _____

Oil flow mesurment / free wheel 500 GNY

Information	**Procedure**	**Accomplishment**	**Tools / Equipment**	**Cleaning**
/3	**/2**	**/3**	**/1**	**/1**

Comments: _____

Tail rotor rigging 300 CAL

Information	**Procedure**	**Accomplishment**	**Tools / Equipment**	**Cleaning**
/3	**/2**	**/3**	**/1**	**/1**

Comments: _____

Free Internship 1

Information	**Procedure**	**Accomplishment**	**Tools / Equipment**	**Cleaning**
/3	**/2**	**/3**	**/1**	**/1**

Comments: _____

ANNEX

EVALUATION GRID 280-5C3-EM / FALL 2021

INFORMATION	**PROCEDURE**	**ACCOMPLISHMENT**	**TOOLS / EQUIPMENT**	**CLEANING**	**SECURITY**
Summary of procedures. Good manual. Good tightening torque.	Precise application. Use good software. Chronology. Understanding and correct interpretation.	Rigourous judgment of work priorities and judicious choice of operations to be carried out. Precise execution. Problem solving. Quality of work.	Appropriate preparation of equipment and work area. Choice of tools and appropriate use.	Work area. Aircraft. Hazardous Material.	Glasses. **- 1** Shoes. **- 1** Uniform. **- 1** Task execution leading to obvious danger. **– 5**

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: _____

Free internship 2 (Formative)

Information /3 **Procedure /2** **Accomplishment /3** **Tools / Equipment /1** **Cleaning /1**

Comments: _____

Name: _____	**Name:** _____	**Name:** _____	Health and safety
/ 60% / 30% / 10%	/ 60% / 30% / 10%	/ 60% / 30% /10%	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.
Total: / 100%	**Total: / 100%**	**Total: / 100%**	