

COURSE OUTLINE

COURSE : Internship on Helicopter 1

PROGRAM : 280.C0 Aircraft Maintenance Technology

DISCIPLINE : 280 Aeronautics

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

Teacher (s)	Office	☎ Extension	✉ Email or Website
Serge Rancourt	C-160	4664	serge.rancourt@cegepmontpetit.ca

OFFICE HOURS FOR STUDENTS

	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
Morning					
Afternoon					

Dep. Coordinator(s)	Office	☎ Extension	✉ Email or Website
Rancourt, Serge	C-160	4664	serge.rancourt@cegepmontpetit.ca
Ménard, Pierre	C-160	4207	pierre.ménard@cegepmontpetit.ca

CONTEXT OF THIS COURSE IN 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.

Transports 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 (280.03) and Avionics (280.04) according to Transport Canada requirements. The application of Transport Canada policies regarding absences is available on the college website and in the student agenda under the heading « Privilèges accordés par Transports Canada ».

COMPETENCIES OF THE EXIT PROFILE (STUDENT SKILL PROFILES)

To master the aeronautic maintenance work technics.

MINISTERIAL OBJECTIVE(S) AND COMPETENCIES

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

TERMINAL OBJECTIVE OF THE COURSE (FINAL COURSE OBJECTIVE)

- Gathering Necessary Information
- Planning Work
- Carrying Out Inspections
- Storing and Cleaning Work Area

TEACHING AND LEARNING STRATEGIES

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

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.

COURSE PLAN

1. Gathering Necessary Information

Learning Objectives	Content
1.1 Identify the exact Transport Canada inspection and maintenance standards that apply to helicopters.	All
1.2 Identify the exact specifications of the manufacturer concerning the inspection and maintenance to be performed on the helicopter.	All
1.3 Identify the type of inspection to be performed on the helicopter.	All
1.4 Review the specific facts in the history and technical documentation of the helicopter to inspect.	8

2. Work Planning

Learning Objectives	Content
2.1 Establish, in detail, the relevance and type of intervention to carry out from • the history of the helicopter to inspect, • the technical documentation.	7, 8, 9
2.2 Determine the inspection work steps.	All
2.3 Determine the necessary equipment to carry out the operations and check the availability.	All
2.4 Respect the limits of intervention and the responsibilities as an aircraft maintenance engineer (AME).	All

3. Carrying Out Inspections

Learning Objectives	Content
3.1 Follow and respect standards and specifications.	All
3.2 Apply health and safety rules.	All
3.3 Turn on helicopter systems.	3, 4, 6, 7, 8
3.4 Use equipment and tools appropriately.	All
3.5 Apply inspection procedures.	All
3.6 Evaluate the serviceability of components and systems.	3, 4, 6, 7, 8
3.7 Identify defects (snags).	All
3.8 Check components condition and operation and systems.	3, 4, 6, 7, 8
3.9 Record defects, checks and inspections in writing or using aircraft maintenance software.	All

4. Storing and Cleaning Work Area

Learning Objectives	Content
4.1 Store and clean work area.	All
4.2 Handle equipment safely.	All

<u>Weeks</u>				<u>Activities</u>
1.	Introduction			
2.	Main rotor	300	CAL	1
3.	Tail rotor drive shaft damper	500	GNV	2
4.	Oil flow check / Overrunning clutch oil level check	500	GNV	3
5.	Tail rotor rigging	300	CAL	4
6.	Electrical snags	47	ENA	5
7.	Compressor wash	206B	UXA	6
8.	Daily inspection	350	VYL	7
9.	Tail rotor assembly	350	IAQ	8
10.	100 hours inspection	R44	MIX	9
11.	Tail rotor control tube (Nylatron)	206	JPL	10
12.	Exam			

SYNTHESIS OF SUMMATIVE EVALUATION METHODS

Activity Evaluation Description	Learning context and method of evaluation	Learning Objective(s)	Evaluation criterias	Due Date (assignment or exam)	Weighting (%)
Participation to the 10 th listed activities.	Work will be performed in teams of 2 or 3, while evaluation will be done individually.	All	See appendix.	Between Weeks 2 and 11	7% per activity for a total of 70%
Written and practical Exam	Individually.	All		Week 12	30%

TOTAL : 100%

REQUIRED MATERIAL

None

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".

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:

- See section « Règles des départements » at the following website link:
<http://guideena.cegepmontpetit.ca/regles-des-departements/>

(4) **Presentation of Written Work**

The student must meet the "Written Work Standard Presentation" adopted by the CEGEP. Non-compliance with these standards may delay the acceptance of work or affect the rating granted. These standards are available in **Flash Links**, **Bibliothèques** under "**Méthodologie**" of the CEGEP Documentation Centers at: www.cegepmontpetit.ca/normes.

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.cegepmontpetit.ca/regles-des-departements/>

METHODS OF COURSE PARTICIPATION

SECURITY MEASURES IN THE HANGARS

1. Smoking is prohibited.
2. Sitting on benches or machines is prohibited.
3. Safety shoes must be worn at all times (sandals are 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. Sleeves with wide cuffs or fringe must not be worn when working near machinery.
7. Safety glasses must be worn when working on the machinery.
8. The machinery and benches must be cleaned after use.
9. The workshop must be cleaned after each course.
10. The bending machine may only be used by authorized personnel.
11. No aluminum or non-ferrous material on the grinders.
12. Suitcases, briefcases and towels are prohibited.
13. No one may circulate in the hangar unless authorized.

OTHER DEPARTEMENTAL REGULATIONS

Students are encouraged to consult the website for the specific regulations for this course:
<http://guideena.cegepmontpetit.ca/regles-des-departements/>.

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.

APPENDIX

Task evaluation (Competencies)				
	Excellent	Good	Acceptable	Inadequate
Retrieving information	3 All information was found easily within the first 15 minutes of the course.	2 All information was found within the first 15 minutes of the course.	1 With assistance, the information was found within the first 15 minutes of the course.	0 Couldn't find the information or found after the first 15 minutes of the course.
Following the procedure	3 All steps followed adequately.	2 Most steps followed.	1 Some steps were missed or mixed.	0 The procedure wasn't followed and compromised the integrity of the aircraft.
Task achievement	3 The task was done on time and hardware secured iaw standards.	2 Task done on time but hardware wasn't secured properly.	1 Task done on time but hardware wasn't secured	0 Task not completed.
Tools and equipments	3 Tools and equipment were used adequately.	2 During the task, improper tools were used.	1 During the task, some tools or equipments were used inadequately.	0 The task was stopped due to inadequate use of tools and equipment.
Safety	3 The task was achieved safely.	2 The task was done but some NOTES, WARNING and CAUTIONS were missed.	1 The task was done and most NOTES, WARNINGS and CAUTIONS were missed.	0 The task was stopped due to possibilities of injuries. <i>(not wearing safety glasses)</i> .
Individual involvement	3 The student was involved in all facets of the task	2 The student was involved in some facets of the task.	1 Most of the tasks were carried out by his colleagues.	0 Absent or useless to his team.
Clean up	2 Area and aircraft cleaned. Equipment put away.		1 Area and aircraft not cleaned or equipment wasn't put away	0 Area and aircraft not cleaned and equipment wasn't put away
Total	/20			/7