ÉCOLE NATIONALE D'AÉROTECHNIQUE
UN CAMPUS DU CÉGEP ÉDOUARD-MONTPETIT

280-5B3-EM
FALL 2017
Pre-Flight

COURSE OUTLINE

COURSE: **Internship on Planes 1**

PROGRAM: 280.CO Aircraft Maintenance

DISCIPLINE: 280 Aeronautics

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

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

OFFICE HOURS FOR STUDENTS

	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
Morning					
Afternoon					

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

CONTEXTE OF THIS COURSE IN THE PROGRAM

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

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

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

This course is a mandatory pre-requisite for the course 280-6A4-EM.

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)

Develop a methodology and an inspection work technique around and on airplanes.

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.

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.

COURSE PLAN

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

Activities period

Learning Objectives	Content
1.1 Identify the exact Transport Canada inspection and maintenance standards that apply to helicopters.	1, 2, 3, 4, 5, 7
1.2 Identify the exact specifications of the manufacturer concerning the inspection and maintenance to be performed on the helicopter.	1, 2, 3, 4, 5, 6, 7, 9, 11
1.3 Identify the type of inspection to be performed on the helicopter.	1, 2, 3, 4, 5, 6, 7, 9, 11
1.4 Review the specific facts in the history and technical documentation of the helicopter to inspect.	1, 10

Activities period

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.	1
2.2 Determine the inspection work steps.	1
2.3 Determine the necessary equipment to carry out the operations and check the availability.	1, 2, 3, 4, 5, 6, 7, 9, 11
2.4 Respect the limits of intervention and the responsibilities as an aircraft maintenance engineer (AME).	1, 2, 3, 4, 5, 6, 7, 9, 11

Activities period

Learning Objectives	Content
3.1 Follow and respect standards and specifications.	1, 2, 3, 4, 5, 6, 7, 8, 9, 11
3.2 Apply health and safety rules.	All
3.3 Turn on helicopter systems.	2, 3, 9, 11
3.4 Use maintenance software.	2, 3, 4, 5, 6, 7, 8, 9, 11
3.5 Use equipment and tools appropriately.	All
3.6 Apply inspection procedures.	2, 3, 4, 5, 6, 7, 8, 9, 11
3.7 Evaluate the serviceability of components and systems.	2, 3, 4, 5, 6, 7, 8, 9, 11
3.8 Identify defects (snags).	2, 3, 4, 5, 6, 7, 8, 9, 11
3.9 Check components condition and operation and systems.	2, 3, 4, 5, 6, 7, 8, 9, 11
3.10 Record defects, checks and inspections in writing or using aircraft maintenance software.	2, 3, 4, 5, 6, 7, 8, 9, 10, 11

Activities period

Learning Objectives	Content
4.1 Store and clean work area.	All
4.2 Handle parts and equipment safely.	1, 2, 3, 4, 5, 6, 7, 8, 9, 11

List of Activities

1.	Introduction, planning, organization and equipment	2 hours
2.	Daily inspection on the PA 31 Navajo	4 hours
3.	Daily inspection on the Dornier 328	4 hours
4.	Daily inspection on the Challenger CL 601	4 hours
5.1	Inspection of engine controls	2 hours
5.2	Exam	2 hours
6.	Inspection of the ignition system of a piston engine (PA 23).	4 hours
7.	Verification of the differential compression of a piston engine (PA 23 and Cessna 337T)	4 hours
8.	Cockpit familiarization, marshaling and lubrication task on the aircraft	4 hours
9.	Establish a ground run on a single engine (Cessna 172) and marshaling.	4 hours
10.	Establish a ground run on a single engine (Cirrus SR22) and marshaling.	4 hours
11.	Removal, inspection and installation of a wheel (PA 23 and Aerocommander).	4 hours
12.	Final exam.	3 hours
	Total :	**45 hours**

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, inspection and writen exam on waht we have covered.	Individually	1.1, 1.2, 1.3, 2.1, 2.2, 2.3, 2.4	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	25%
Exam ground run	Individually	1.2, 3.1, 3.8, 3.7, 3.9	Relevance and precision of the answer according to the course standard.	Before ground run	5%
Written reports of technical problems.	Individually	1.3, 1.4, 2.1, 3.9	Conform to model. Accurate description. Respect the presentation standard. Accurate identification and exact anomalies description.	End of each classes	20%
Evaluation of competencies acquired during Activities 1 to 11.	Work will be done in teams of 2 or 3 but evaluations will be individual	3.1, 3.2, 3.4, 3.6, 3.7, 4.1	See table 1	Week 12	20%
Research, inspection and written exam on activities 1 through 11.	Individually	All	See exam 1	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 Manuels de maintenance, RAC, AC 43.13, consignes de navigabilité, bulletins de service, advisory circular type certificates	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%

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.

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

Aircraft inspection for general aviation aircraft owner AC 20-106, Department of Transportation (FAA), ©1978, 92 pages.

Installation, inspection and maintenance of controls for general aviation reciprocating aircraft engines AC 20-143, Department of Transportation (FAA), ©2000, 23 pages.

Aircraft propeller maintenance AC-20-37A, Department of Transportation (FAA), ©2005, 41 pages.

Airframe and Powerplant Mechanics AC 65-9A, General Handbook, Department of Transportation (FAA), ©1976.

Airframe and Powerplant Mechanics AC-65-12A, Powerplant Handbook, Department of Transportation (FAA), ©1976.

Airframe and Powerplant Mechanics EA-AC 65-15A, Airframe Handbook, Department of Transportation (FAA), ©1976.

Applicable Maintenance Manual

Canadian Air Regulation (CAR's). Transports Canada, Canadian Government Publishing Center, Ottawa.

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 follwing 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 of these standards may delay the acceptance of the 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. 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.

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

None.