

COURSE OUTLINE

COURSE: Radio Systems

PROGRAM: 280.D0 Aircraft Maintenance Technology

DISCIPLINE: 280 Aeronautics

WEIGHTING: Theory: 2 Practical Work: 2 Personal Study: 2

| Teacher(s) | Office | ☎ extension | ✉ e mail or website |
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OFFICE HOURS

| | MONDAY | TUESDAY | WEDNESDAY | THURSDAY | FRIDAY |
|-----------|--------|---------|-----------|----------|--------|
| Morning | | | | | |
| Afternoon | | | | | |

| Coordinator(s) | Office | ☎ extension | ✉ e-mail or website |
|-------------------|--------|-------------|--|
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CONTEXT OF THIS COURSE IN THE PROGRAM

This course is offered in the fifth session of the program. It is assumed that students who enroll in the course have passed the courses in their preceding sessions, in particular: DC Avionics (280-3D4), AC Avionics (280-4A4) and Aircraft Instrumentation (280-4C5). Students who do not meet these conditions may still enroll in the course, however the Avionics Department believes that these students will find it more difficult to pass the course.

By the end of the course, students will have developed:

- The ability to explain the general principle of the operation of aircraft radiocommunication and of the intercom system.
- The ability to use technical documents to identify procedures for checking equipment and the appropriate tools for these checks.
- The ability to transmit information about the communications systems in a structured format and using appropriate language.
- The ability to carry out inspection tests, repairs, installations, and removal related to the communication and navigation systems of an aircraft.

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 ».

MINISTERIAL OBJECTIVE(S) AND COMPETENCIES

- **0265** – To verify the operation of communication, navigation and instrumentation systems.

TERMINAL OBJECTIVE OF THE COURSE (FINAL COURSE OBJECTIVE)

At the end of this course, the student will be able to verify the basic operation of avionics systems on aircraft.

TEACHING AND LEARNING STRATEGIES

Theory:

Covid: The theoretical course will be delivered in presence, in a lecture format, and where appropriate and useful, supported by copies of course notes, examples of applications in aircraft maintenance manuals, documentation from radio systems manufacturers, excerpts from reference manuals and multimedia presentations.

Practical Work:

Covid: Spread out over 15 laboratories in presence sessions, the acquisition of the material (know-how?) will be facilitated by a series of experiments from basic characteristics of electronic components, removing and installing components in communication systems, to the verification of performance and simple repairs of various types of airborne communication systems.

COURSE OUTLINE

0265 Verify the operation of communication, navigation and instrumentation systems

| Competency elements | Learning objectives | Transports Canada reference |
|---|---|-----------------------------|
| #1. Gather information related to the operation of systems. | 1. Describe the relationship between avionic systems. | |
| | 2. Describe the principle of operation of electromagnetic waves. | |
| | 3. Identify antennas and describe their principle of operation. | |
| | 4. Identify oscillating circuits, oscillators and synthesizers. | |
| | 5. Explain the general principle of operation of aeronautical communications. | |
| | 6. Explain the general principle of operation of intercommunication systems. | |
| | 7. Describe the different types of displays | |
| #2. Turn on aircraft systems. | 1. Locate the equipment in the aircraft. | |
| | 2. Find the appropriate procedures. | |
| | 3. Follow operating instructions. | |
| #3. Verify system's serviceability. | 1. Perform the verification, removal, installation, and repair of navigation and communication systems. | |
| #4. Compare the operation of systems with manufacturer's specifications and established parameters. | 1. Find manufacturer's specifications of navigation and communication systems. | |
| | 2. Verify the conformity of navigation instruments and communication onboard aircrafts. | |
| #5. Report information. | 1. Report results of performed tests or inspections. | |

Course Outline 280-5B4-EM: Radio Systems

COURSE SCHEDULE

Session Calendar:

Theoretical Part:

| Periods | Content | Personal Study | Objectives | |
|---------------|---|--|--|-------------------|
| Week 1 | 2 Introduction to the course | <ul style="list-style-type: none"> • Course Outline • Introduction to airborne radiocommunication and radionavigation systems • Short presentation of the avionics systems in different airplane and helicopter cockpits • Avionic systems overview | Review course notes taken in class, reference documents and hand-outs. | 0265 #1.1 |
| Weeks 2 and 3 | 4 <ul style="list-style-type: none"> • Electromagnetic waves and their properties • Describe the phenomena related to electromagnetic waves. | <ul style="list-style-type: none"> • Basic principle of radio communications • Nature of electromagnetic waves (EW). • Creation of electromagnetic waves by an electric current <ul style="list-style-type: none"> • Electric field • Magnetic field • Polarization of electromagnetic waves • Propagation speed of electromagnetic waves • Relationship between frequency and wave length • Aeronautical communication and navigation reserved frequency bands • Hazards related to electromagnetic waves • Modes of propagation of electromagnetic waves : <ul style="list-style-type: none"> • Sky waves • Direct waves • Ground waves • Characteristics of different atmospheric layers • Changes in the ionosphere level depending on the season and time of day • Comparison between different modes of propagation and the applications in the aeronautical communications systems. • Properties of HF, VHF, UHF and SHF radio-communication systems. | Review course notes taken in class, reference documents and hand-outs. | 0265 #1.1 et 1.2 |
| Weeks 4 and 5 | 15 min. Closed book mini test (4 points) | <ul style="list-style-type: none"> • 10 multiple choice questions on material covered during Weeks 1 to 3 | Review everything to date (Weeks 1 to 3) | 0265 #1.1 and 1.2 |
| | 1.75 Antennas and their operating principles | <ul style="list-style-type: none"> • Operation principle of antennas • Effective lengths and shapes of antennas • Effectiveness of antennas • Types of antenna polarization • Choices of installation locations <ul style="list-style-type: none"> ○ Mass and radiation plan ○ Antenna couplers and their uses • Examples of antenna installation on aircrafts • Maintenance and protection of the antennas | Review course notes taken in class, reference documents and hand-outs. | 0265 0265 # 1.3 |

Course Outline 280-5B4-EM: Radio Systems

| Periods | | Content | Personal Study | Objectives | |
|---------------|---|--|--|--|-----------------------------------|
| Weeks 4 and 5 | 4 | General principle of operation of aeronautical radio systems | <ul style="list-style-type: none"> • RF Power • Definitions of Bel and decibel • Introduction to basic concepts of radio circuits (qualitative approach): <ul style="list-style-type: none"> • Filters: highpass, lowpass, bandpass, notch (bandstop) • Amplifier circuits . • Oscillator circuits • Synthesizers | Review course notes taken in class, reference documents and hand-outs. | 0265 #1.1, 1.4 et 1.5 |
| Week 6 | 1 | Written Exam #1: Closed book (18 points). | <ul style="list-style-type: none"> • Covers all material seen during Weeks 1 to 5. | Review all material seen to date (Weeks 1 to 7) | 0265 # 1.1, 1.2, 1.3, 1.4 and 1,5 |
| Week 7 and 8 | | Radio communication | <ul style="list-style-type: none"> • Block diagram of a transceiver. • Modulation and types of modulation used in aeronautics: CW, AM, SSB, FM and PM. • The operating principle of a VHF-AM transceiver. • The separation between channels • The number of channels in the reserved range. Evolution of VHF-AM communication. • The components in a VHF-AM communication system. • The control console. • The transceiver. • Study of an example of a VHF-AM system installed on an aircraft. • Emergency Locator Transmitter (ELT) • On-board audio systems • Components in an intercom system and their operation. • Microphones, speakers and headsets. • SELCAL • SATCOM • Datalink • Examples of audio systems • Audio panels. | Review course notes taken in class, reference documents and hand-outs. | |
| Week 9 | 1 | Logic gates and digital electronics | <ul style="list-style-type: none"> • Basic principles of digital electronics (qualitative approach) <ul style="list-style-type: none"> • Logic state • Combinatorial logic gates. • Sequential logic circuits • Encoding and decoding • Example of decoding BCD to 7 segments | Review course notes taken in class, reference documents and hand-outs. | 0265 #1.7 |

Course Outline 280-5B4-EM: Radio Systems

| Periods | | Content | Personal Study | Objectives | |
|---------------------|------|---------------------------------------|---|--|--------------------------------|
| Week 10 | 0.25 | Closed book mini test (4 points) | <ul style="list-style-type: none"> 10 multiple choice questions on material seen during Weeks 7 to 9. | Review all material (Weeks 7 to 9) | 0265 # 1.1, 1.2, 1.4, 1.5, 1.6 |
| Weeks 10, 11 and 12 | 5.75 | Principles of radionavigation systems | <ul style="list-style-type: none"> Short range navigation systems (elements) : Systèmes de navigation à courte distance (éléments) : <ul style="list-style-type: none"> ILS ADF VOR ILS DME Satellite navigation systems (GNSS) (elements): <ul style="list-style-type: none"> GPS. GLONASS. Galileo. SBAS LPV Identification and positioning systems and (elements) : <ul style="list-style-type: none"> Transponder TCAS. ADS-B. MLAT | Review course notes taken in class, reference documents and hand-outs. | 0265 #1.2, 1.4 |
| Week 13 | 0.25 | Closed book mini test (4 points) | <ul style="list-style-type: none"> 10 multiple choice questions on material seen during Weeks 10 to 12. | Review all material (Weeks 10 to 12) | 0265 # 1.2, 1.4, |
| Weeks 13 and 14 | 1.75 | Different display types and methods. | <ul style="list-style-type: none"> Electronic display systems. (EFIS, HUD, synthetic vision). EICAS systems. Flight Management System (FMS) interfaces. Radar altimeter. GPWS, EGPWS, TAWS, RAAS. Weather Radar Lightning detection | Review course notes taken in class, reference documents and hand-outs. | 0265 # 1.7. |
| Week 15 | 2 | Final Exam: Closed book (30 points) | Comprehensive written exam for the course. No documents allowed. | Review all material seen in the course (Weeks 1 to 14) | 0265 : # 1, |

Course Outline 280-5B4-EM: Radio Systems

Practical Part

| Periods | | Content | Personal Study | Objectives | |
|---------|--------|---|---|---|--------------------------|
| Week 1 | 2 per. | Introduction to the course and review of safety measures | <p><u>Laboratory:</u> Introduction to safety rules and how to work in the laboratory, hangars and runways.</p> <p><u>Hangars (review) :</u> safety measures, GPU and electrostatic connection</p> | <p>Summarize important concepts concerning safety in the laboratory, the hangars and on the runways.</p> <p>Write an individual report that will be handed in at the end of the course.</p> | 0265 |
| | | Preparation for Restricted Operator's Certificate Exam | <p><u>Laboratory:</u></p> <ul style="list-style-type: none"> o Analysis of difficulties encountered in studying CIR-21 document o Situational radio communication exercises <p>Scenario questionnaire</p> | <p>Study CIR-21 document distributed by Industry Canada</p> <p>In-class correction of the scenario questionnaire</p> | 0265 # 2.3. |
| Week 3 | 2 per. | License Exam to obtain the Restricted Operator's Certificate with Aeronautical Qualification | The mark for this class as well as the preceding class, will be determined by the mark obtained on the Industry Canada exam. | 0265 # 2.3. | |
| Week 4 | 2 per. | Removing and installing of radios, identifying their types, their models, their locations and their serial numbers. | <p><u>Hangars:</u></p> <p>Learn techniques of removal and installation of avionics equipment (Allen wrench, chassis components, Dzus fasteners)</p> | Write report (individually) to be handed in at the end of the course. | 0265 # 3.1 and 5.1. |
| Week 5 | 2 per. | Antenna installation (On a metal plaque). | <p><u>Laboratory:</u></p> <ul style="list-style-type: none"> o Check knowledge on the use of hazardous materials (CRP) <p>Learn techniques for installing antennas</p> | <p>Review WHMIS symbols and regulations</p> <p>Written report (individually) handed-in at the end of the course</p> | 0265 # 4.1, 4.2 and 5.1. |

Course Outline 280-5B4-EM: Radio Systems

| Periods | | Content | | Personal Study | Objectives |
|-----------------|--------|--|--|--|------------------------------------|
| Week 6 | 2 per. | Basic principles of digital electronics (qualitative approach): Logical states. Combinatorial logic gates. Sequential logic circuits. Encoding and decoding. Example of 7-segment BCD decoding. Aeronautic applications. | <u>Laboratory:</u> With training aids, using step by step approach, design a landing gear alert system. | Written report (individually) handed-in at the end of the course | 0265 # 1.7. |
| Week 7 | 2 per. | Verification of Characteristics & Principles of antennas and electromagnetic waves. | <ul style="list-style-type: none"> - Dimension of an antenna related to its frequency - Impedance adaptation - Grounding of a Marconi antenna - SWR verification in different situations | Written report (individually) handed-in at the end of the course | 0265 # 2.1, 2.2, 4.1. 4.2 and 5.1. |
| Week 8 | 2 per. | Testing audio systems (by students). | Hangars: Operation and verification of intercom, audio and PA systems | Review material on audio systems. Written report (individually) handed-in at the end of the course. | 0265 # 4.1, 4.2, and 5.1. |
| Week 9 | 2 per. | EFIS operation demonstration | Démo EFIS – CS-100 | Written report (individually) handed-in at the end of the course | 0265 # 2.1, 2.2, 4.1. 4.2 and 5.1. |
| Week 10 | 2 per. | OMS - Fault - CB | Démo OMS- Fault - CB – CS100 | Written report (individually) handed-in at the end of the course | 0265 # 2.1, 2.2, 4.1. 4.2 and 5.1 |
| Weeks 11 and 12 | 4 per. | Identification of aircraft antennas and avionics systems | <u>Hangars:</u> Antenna and avionic systems identification | Write report (individually) to be handed in at the end of the course. | 0265 # 2.1. |

Course Outline 280-5B4-EM: Radio Systems

| Periods | Content | Personal Study | Objectives | |
|----------------|---|---|--|---|
| Weeks 13 to 15 | 2 per. Identify the locations of the ELT distress beacons on different types of aircraft and carry out a test on them. (rotation, 1 of 3, part 1) | <u>Hangars:</u> <ul style="list-style-type: none"> ○ Check the location of the ELT beacons on different planes and helicopters. ○ Open a job card for a test ○ Perform a test (demonstration by the teacher). ○ Write final version of job card ○ Prepare ELT beacon for shipping | Review required regulations (CAR) Written report (individually) handed-in at the end of the course. | 0265 # 2.1, 2.2, 4.1, 4.2 and 5.1. |
| | Testing radiocommunication systems (rotation, 1 of 3, part 2) | <u>Hangars:</u> <ul style="list-style-type: none"> ○ Test VHF-COM systems and audio console. ○ Use of walkie-talkie by students (restricted operator's certificate mandatory) | Review material on radiocommunication (individual evaluation of knowledge by the instructor) Test sheets and job cards to hand in at the end of the course. | 0265 # 2.1, 2.2, 4.1, 4.2 and 5.1. |
| Weeks 13 to 15 | 2 per. Testing radionavigation systems (rotation, 2 of 3) | <u>Hangars:</u> <ul style="list-style-type: none"> ○ Test VOR, ILS, CDI, HSI systems and audio console. ○ Use of TIC T30D portable testers by students | Review material on radionavigation (individual evaluation of knowledge by the instructor) Test sheets and job cards to hand in at the end of the course. | 0265 # 2.1, 2.2, 3.1, 4.1, 4.2 and 5.1. |
| | 2 per Testing radionavigation and identification systems (rotation, 3 of 3) | <ul style="list-style-type: none"> ○ Test transponder system (mode A and C) and DME. ○ Use of TR220 portable testers by students | Review material on radionavigation and identification systems (individual evaluation of knowledge by the instructor) Test sheets and job cards to hand in at the end of the course. | 0265 # 2.1, 2.2, 3.1, 4.1, 4.2 and 5.1. |

ROTATION LABS SCHEDULE

| Week | LAB # 1/3 | LAB # 2/3 | LAB # 3/3 |
|------|-----------|-----------|-----------|
| 13 | team 1 | team 2 | team 3 |
| 14 | team 3 | team 1 | team 2 |
| 15 | team 2 | team 3 | team 1 |

SYNTHESIS OF SUMMATIVE EVALUATION METHODS

Theory⁽¹⁾

| Description of Evaluation Activity | Context | Learning Objective(s) | Evaluation criterias | Due Date (date assignment is due or exam given) | Weighting (%) |
|--|--|-------------------------------------|-----------------------|--|---------------|
| Mini test 1 (15 minutes--maximum) Describe the relationship between avionic systems. Describe the principle of operation of electromagnetic waves. | Written test of 10 multiple choice questions | 0265 #1.1 and 1.2 | Accuracy of answers ; | Week 4 | 4 points |
| Exam 1 (1 hour) Describe the relationship between avionic systems. Describe the principle of operation of electromagnetic waves. Identify antennas and describe their principle of operation. Identify oscillating circuits, oscillators and synthesizers Explain the general principle of operation of aeronautical communications Describe the different types of displays | Written Exam | 0265 # 1,1, 1.2, 1.3, 1.4, 1.5, 1.7 | | Week 6 | 18 points |
| Mini test 2 (15 minutes--maximum) Describe the relationship between avionic systems. Describe the principle of operation of electromagnetic waves. Identify oscillating circuits, oscillators and synthesizers Explain the general principle of operation of aeronautical Explain the general principle of operation of intercommunication systems. | Written test of 10 multiple choice questions | 0265 # 1.1, 1.2, 1.4, 1.5, 1.6 | | Week 10 | 4 points |

Course Outline 280-5B4-EM: Radio Systems

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|--|---|------------------------|------------------------------|----------------|------------------|
| <p>Mini test 3 (15 minutes-- maximum) Describe the principle of operation of electromagnetic waves. Identify oscillating circuits, oscillators and synthesizers</p> | <p>Written test of 10 multiple choice questions</p> | <p>0265 # 1.2, 1.4</p> | <p>Accuracy of answers ;</p> | <p>Week 13</p> | <p>4 points</p> |
| <p>Exam 2 (2 hours) Describe the relationship between avionic systems. Describe the principle of operation of electromagnetic waves. Identify antennas and describe their principle of operation. Identify oscillating circuits, oscillators and synthesizers Explain the general principle of operation of aeronautical communications Explain the general principle of operation of intercommunication systems. Describe the different types of displays</p> | <p>Written Exam</p> | <p>All objectives</p> | | <p>Week 15</p> | <p>30 points</p> |

Sub-total : 60

Course Outline 280-5B4-EM: Radio Systems

Practical Work ⁽²⁾

| Description of Evaluation Activity | Context | Learning Objective(s) | Evaluation criterias | Due Date (date assignment is due or exam given) | Weighting (%) |
|--|---|---|---|--|---------------|
| Introduction to the course and review of safety measures | Individual report | 0265 # 2.1 and 5.1. | Conformity of research in publications. Work performed in accordance with regulations, procedures, manufacturer's specifications and health safety regulations. Conformity of equipment in accordance with regulations, procedures manufacturer's specifications Accuracy of reports and job cards. Conformity of research in publications. Work performed in accordance with regulations, procedures, manufacturer's specifications and health safety regulations. Conformity of equipment in accordance with regulations, procedures manufacturer's specifications Accuracy of reports and job cards. | | 0 point. |
| Familiarisation with avionics systems installed in general and business aviation | Individual report | 0265 # 1.2, 2.1 and 4.1. | | 0 point. | |
| Radiotelephone license test— aeronautical category. | Industry Canada Exam | 265 # 2.3. | | During the class for Week 3 | 5 points |
| Removing and installing radios, identifying their types, models, locations and serial numbers. | Individual report | 0265 # 3.1 and 5.1. | | At the end of class. Week 4 | 5 points. |
| Antenna installation | Check knowledge about WHMIS (questionnaire, 5 questions). | 0265 # 4.1, 4.2 and 5.1. | | At the beginning of the class – week 5 | 0 point. |
| | Practical work : install following standards, taking care to assure sealing joint | | | At the end of the class – week 5. | 0 point. |
| Digital | Individual report | 0265 # 2.1, 2.2, 4.1, 4.2 and 5.1. | | At the end of the class – week 6. | 0 points |
| SWR - Audio panel - ICS | Individual report | 0265 # 4.1, 4.2 and 5.1 | | At the end of the class – week 7. | 5 points. |
| Interphone - PA | Individual report | 0265 # 2.1, 2.2, 3.1, 4.1, 4.2 and 5.1. | | At the end of the class – week 8. | 5 points. |
| EFIS - Cseries | Individual report | 0265 # 2.1, 2.2, 3.1, 4.1, 4.2 and 5.1. | | At the end of the class – week 9. | 0 point. |
| OMS- Fault - CB - Cseries | Individual report | 0265 # 2.1, 2.2, 3.1, 4.1, 4.2 and 5.1 | At the end of the class – week 10. | 0 point. | |

Course Outline 280-5B4-EM: Radio Systems

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|---|--|---|--|--|-----------|
| Antenna and EMW principles and characteristics audio system | Before class preparation Individual report | 0265 # 2.1, 2.2, 4.1, 4.2 and 5.1. | | At the end of the class – week 11 -12 | 0 point. |
| Identifying locations of ELT distress beacons on different types of aircraft and performing a test on them (1/3 part 1) | Test ELT knowledge (questionnaire, 3 questions). | 0265 # 2.1, 2.2, 4.1, 4.2 and 5.1. | | At the beginning of class – weeks 13, 14, 15 | 2 points. |
| | Individual report | | | At the end of class – weeks 13, 14, 15 | 1 point. |
| Testing radiocommunication systems. (1/3 part 2) | Individual report, test sheets and job cards | 0265 # 2.1, 2.2, 3.1, 4.1, 4.2 and 5.1. | | At the end of class – weeks 13, 14, 15 | 3 points. |
| Testing radionavigation systems. (2/3) | Individual report, test sheets and job cards | 0265 # 2.1, 2.2, 3.1, 4.1, 4.2 and 5.1. | | At the end of class – weeks 13, 14, 15 | 7 points. |
| Testing radionavigation and identification systems. (3/3) | Individual report, test sheets, job cards | 0265 # 2.1, 2.2, 3.1, 4.1, 4.2 and 5.1. | | At the end of class – weeks 13, 14, 15 | 7 points. |

Sub-total : 40

TOTAL : 100

- (1) The exams are written exams for which students must solve circuits using mathematical developments. These exams may also include multiple choice questions.
- (2) In order for a report to be corrected, students must be present for the corresponding activities. Any student who is absent for an activity or a part of an activity will receive a zero (0) for the report corresponding to this activity or the part of the activity missed. If the absence is for a serious reason, the student will not be penalized for this activity or part of the activity.

REQUIRED MATERIAL

- Safety equipment complying to ENA rules

Students must use the mounting plate and the components that were given to them during the first session. All other required equipment for the course will be provided by the school.

MEDIAGRAPHY

Required texts

- Laboratory Notes - LEA

Course documents (theory and laboratory) are available on LÉA or on the instructor's website

Canadian aviation regulations: available on the website for Transport Canada (<http://www.tc.gc.ca/fra/lois-reglements/reglements-dors96-433.html>).

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.

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/>.

(5) Quality of the English language

The Instructor supports the use of the exact English terminology.

The formative evaluation also relates to the quality of oral and written English. If need be, the instructor recommends to the students to register for an English course.

When a given homework is considered to be unacceptable because of the quality of written English, the correction of this work will be delayed until work is returned in the standards set by the instructor. In this case, the homework handing-over delays penalties apply.

The professor can allocate 10% of the mark for a work to the quality of oral or written English.

CLASS PARTICIPATION EXPECTATIONS

Laboratory safety and use of the premises:

Students must be under the supervision of an instructor or a technician whenever they are in the laboratory or using the equipment, unless otherwise indicated.

Any student whose conduct in the laboratory poses a risk to others will receive a warning from the instructor and then be excluded from the laboratory until the case can be reviewed by the instructor and the coordinator of the Avionics Department.

For bimodal classes, add this notice:

By attending online classes through videoconference technology, the student understands that his image and voice may be captured on video in the context of his courses and agrees to this. Videos are only visible during live classes and by the teacher and other participants exclusively.

For pedagogical reasons, some courses may be recorded. It is the teacher's responsibility to clearly inform students beforehand when their images and voices are to be captured on video . Any student opposed to his image and/or voice being recorded may turn off his camera and microphone but will be required to participate in writing through means established by the teacher. Otherwise, students who activate their cameras or their microphones are deemed to have agreed to their images and voices being taped. These recordings of courses will be available for the express and sole use of those students registered in the courses for the duration of the semester. It is strictly forbidden to broadcast these recordings in any public manner or to use them other than for pedagogical purposes.

No student may record an online course without prior consent from the teacher. Students whose personal information (voices and images) is captured on video may exercise such remedies as provided by the right to access records and the right of rectification per the Act respecting access to documents held by public bodies and the protection of personal information through the Cegep's Secretary General's Office.

OTHER DEPARTMENTAL REGULATIONS

Students are encouraged to consult the website for the specific regulations for this course:

<http://guideena-en.cegepmontpetit.ca/department-rules/>

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

INSTITUTIONAL POLICIES AND REGULATIONS

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.

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.

ANNEX

No.