

COURSE OUTLINE

COURSE: **Introduction to a Computer-Assisted Design Software Program (CATIA)**

PROGRAM: 280.B0 Aircraft Construction Technology – Complementary Course

DISCIPLINE: 280 Aeronautics

WEIGHTING: Theory: 1 Practical Work : 2 Personal Study: 3

Instructor(s)	Office	☎ Extension	✉ email or website
Denis Grenier	A-193	4386	denis.grenier@college-em.qc.ca

OFFICE HOURS

	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
Morning					
Afternoon					

Coordinator(s)	Office	☎ Extension	✉ email or website
Robert Turcotte	A-183	4723	robert.turcotte@college-em.qc.ca
Frédéric Jouffreau	A-193	4704	frederic.jouffreau@college-em.qc.ca

CONTEXT OF THIS COURSE IN THE PROGRAM

This course is an introduction to computer modeling using the CATIA software. The training will cover various fields of application software for computer-aided design (CAD). Supervised exercises in class will allow students to learn the basics of modeling, assembling and producing technical drawings. The skills learned in this course are a major asset for many university programs (architecture, mechanics, electrical engineering, electronics, design, dental studies, aerospace engineering, etc.).

MINISTRY OBJECTIVE(S) AND COMPETENCIES

0012 To use various mathematical or computer concepts, procedures and tools for common tasks.

TEACHING AND LEARNING STRATEGIES

Using drawings of parts according to ASME Y14.5M-1994 standards, students will learn to model and draw with CATIA V5 software.

By the end of the session, students will be introduced to assembly design.

The schedule includes 3 periods of class attendance per week distributed as follows (except for the course when the exam is taken):

First Part: Lecture, conference, demonstration or review format.

Second Part: Workshop where students take advantage of laboratory sessions to work on case studies under the instructor's supervision.

Students have access to computer laboratories which allow them to practice or complete assignments.

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COURSE PLAN

Module	Learning Objectives	Content	Educational Methods	
			Teaching Activities	Learning Activities
1 3 h	1.1 Become familiar with the computer environment 1.2 Use the design software environment	<ul style="list-style-type: none"> ▪ Network environment ▪ Basic commands of the operating system ▪ Operating computer peripherals ▪ Creating and managing folders ▪ Icon interface ▪ Becoming familiar with 3D geometry ▪ Using the mouse 	Formal lecture Demonstrations.	Practical exercises
2 3 h	2.1 Create sketches with the tutorial <i>Sketcher</i>	<ul style="list-style-type: none"> ▪ Defining contours ▪ Developing dimensional and geometric constraints 	Formal lecture Demonstrations.	Practical exercises
3 21 h	3.1 Create solid models with the tutorial <i>Part Design</i> .	<ul style="list-style-type: none"> ▪ Using basic commands to generate a model from sketches ▪ Selecting modeling methods ▪ Boolean operations to use in order to produce the model ▪ Exploiting possibilities of the model design shaft (CATIA software specification tree) 	Formal lecture Demonstrations.	Practical exercises
4 9 h	4.1 Generate a definition drawing from the tutorial <i>Drafting</i> .	<ul style="list-style-type: none"> ▪ Representing views and layout in the design sheet. ▪ Using the model to extract the views needed to define the part ▪ Selecting the size of the sheet. ▪ Registering the dimensions, notes, etc. ▪ Printing. 	Formal lecture Demonstrations.	Practical exercises
5 9 h	5.1 Create assemblies by following the tutorial <i>Assembly Design</i> .	<ul style="list-style-type: none"> ▪ Basic structure of simple assembly models. ▪ Assembly constraints 	Formal lecture Demonstrations.	Practical exercises

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SYNTHESIS OF EVALUATION METHODS

Description of Evaluation Activity	Context	Learning Objective(s)	Due Date (date assignment is due or exam date)	Weighting (%)
<u>Lab Assignment 1:</u> - Modeling a simple part from a drawing. - Individual work	Individual work: use a drawing to produce a model	1.1 to 3.1	Week 3	10%
<u>Exam 1:</u> - Modeling a simple part from a drawing. - Individual work - Course notes allowed	During the course according to the regular schedule	1.1 to 3.1	Week 5	15%
<u>Lab Assignment 2:</u> - Modeling a part from a drawing - Producing a simple drawing - Individual work	Individual work: Use a drawing to produce a model	1.1 to 4.1	Week 9	10%
<u>Exam 2 :</u> - Modeling a part from a drawing - Producing a simple drawing - Individual work -	During the course according to the regular schedule	1.1 to 4.1	Week 11	20%
<u>Lab Assignment 3:</u> - Modeling a simple assembly from a drawing of an assembly - Individual work - Course notes allowed	Individual work: Use a drawing to produce an assembly	All	Week 13	15%
<u>Exam 3 (final exam) :</u> - Modeling a part from a drawing - Producing a drawing with orthogonal, cut and detail views - Create assembly constraints for a product. The parts are provided - Individual work - Course notes allowed	During the course according to the regular schedule	All	Week 15	30%

TOTAL: 100%

REQUIREMENTS TO PASS THE COURSE

(1) **Passing Mark**

A passing mark is 60%.

(2) **Course Attendance for Summative Evaluations**

Students must be present for exams. Students who are absent will receive a mark of zero (0).

The Department will excuse absences for the following reasons: medical absence (medical documents required), death in the immediate family; absence due to legal obligation (legal documents required), and any other reason that the instructor deems acceptable. Documents must be presented to the instructor within five work days before or after the exam.

Programmable calculators are not permitted during exams.

(3) **Submitting Assignments**

All assignments must be submitted by the date, place and time determined by the instructor. Any assignment submitted after the due date will be penalized 5% per day it is late, for a maximum of 4 work days or until the corrected version has been made available to students (this date will be provided by the instructor and may differ from group to another). The assignment will receive a zero (0) after this date.

(4) **Presentation of Written Work**

Students must follow the standards adopted by the College for written work (*Normes de présentation matérielle des travaux écrits*). These can be found in the documentation centre on the College web site (<http://ww2.college-em.qc.ca/biblio/normes.pdf>) under the heading **Aides à la recherché**.

To submit exam or project files, students must create a folder and put their files in the folder before submitting the folder to the place determined by the instructor. This folder must be identified in the following format:

214-NoGroup-LastnameFirstname (ex : 214-3010-MichaudMichel)

The files must be identified according to this format:

214-NoGroup-Lastname or Drawing number-LastnameFirstname (ex : 214-3010-Frame-MichaudMichel ou 214-3010-001-DeschampsRene)

Each file that is improperly identified will receive a 5% penalty.

CONDITIONS FOR COURSE PARTICIPATION

- Be present
- Take responsibility
- Make clear and informed decisions
- Make a concerted effort in realizing projects
- Plan and organize activities
- Collaborate with the team
- Be attentive to quality and production time
- Respect written and oral communication standards

REQUIRED MATERIAL

USB key or appropriate means to store files.

MEDIAGRAPHY

Reference Works: Internet Information Site: <http://www.3ds.com/>

INSTITUTIONAL POLICIES AND REGULATIONS

All students enrolled at Collège 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, les conditions particulières concernant le maintien de l'admission d'un étudiant, la Politique de valorisation de la langue française, la Politique pour un milieu d'études et de travail exempt de harcèlement et de violence, les procédures et règles concernant le traitement des plaintes étudiantes.*

The complete text of these policies and regulations is accessible on the College web site at the following address: www.college-em.qc.ca. If there is a discrepancy 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.

NOTE: This Course Outline is a translation of the *Plan de cours* for 280-Z13-EM: *Introduction à un logiciel de conception assistée par ordinateur (avec le logiciel CATIA)*. If there is a discrepancy, then the original French version will be considered the official version for legal purposes.

OTHER DEPARTMENT REGULATIONS

Students are encouraged to consult the website for the specific regulations (in French) for this course: <http://www.college-em.qc.ca/>
www.college-em.qc.ca/ena/construction/reglements