![McGill Faculty of Engineering]

FACC 400 Engineering Professional Practice
Winter 2017

TUTORIAL DESCRIPTION

OVERVIEW

The tutorials will involve case studies that will challenge and develop further concepts discussed during the classes. The case studies will relate to concepts of ethics, responsibility, liability, sustainability, and environmental legislation. Each student will investigate only one of the case studies and participate in the presentation of this case study in one of five ways described below. Although you will participate actively in only one of the case studies, you will be responsible for developing an understanding of all of the case studies and their connection with engineering professional practice as presented in the tutorial. The final exam for the course will be in part composed of questions relating to each case study as they are discussed in the tutorial. **You are expected to attend all tutorials**.

There will be eight case studies and ~ 22 students will participate actively in each case study as illustrated in Fig. 1. Each case study will form five main *Presentation Groups*, with each group responsible for investigating the case study and presenting the information in one of the following formats:

> Infographic: 4 students
> Article: 4 students
> Video: 4 students
> Town Hall + Secretary: 6 students + 2 students
> Blog Post: 2 students
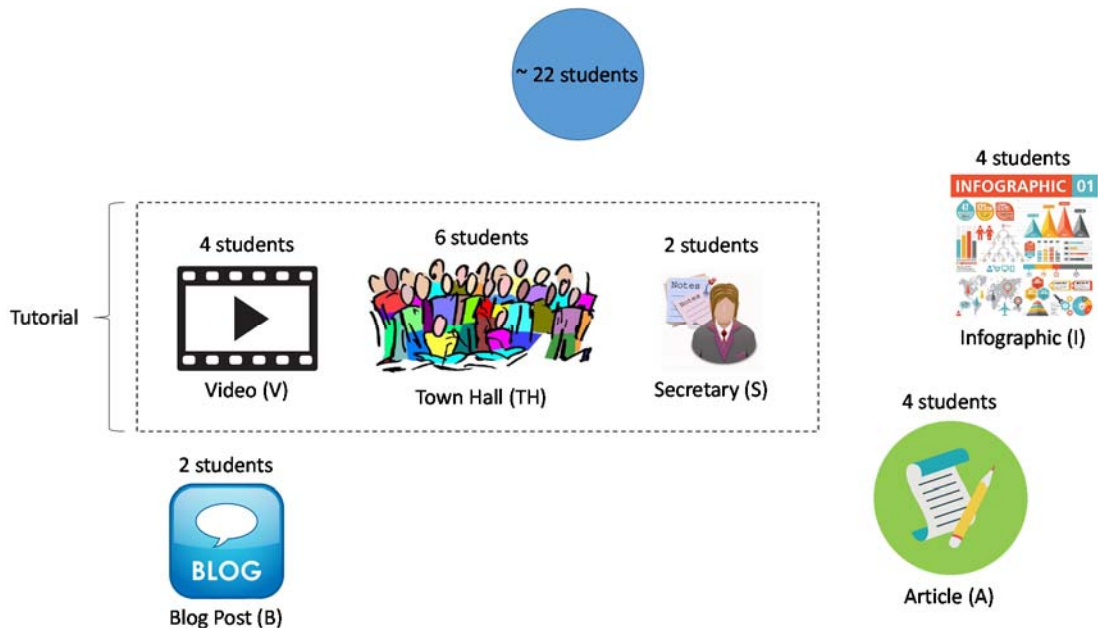

Fig. 1: Illustration of the different presentation groups for a case study.

PRESENTATION GROUPS

Article (~ 2,000 words):
The question to be addressed in the article will be assigned to the group one week *prior* to the tutorial and will involve both the case study and elements of engineering professional practice developed during class. The article must be submitted through myCourses (assignment tab) *by 5 pm one week from the day of the tutorial*. The article must be properly referenced (references are not part of the word count).

Video (~ 5 minutes):
The Video group will be responsible for preparing a **5 minute video** on the case study, providing both a general overview, timeline, perspectives from both supporters and those opposed, relevant abstractions from news articles and social media, and next steps. The video must be uploaded to YouTube and the link submitted through myCourses (assignment tab) *by 5 pm of the day **before** the tutorial*.

Town Hall (~ 40 minutes):
The town hall will be structured as an 'informal' public meeting where the case study will be discussed. 6 students in the Town Hall group will act as 'public figures' (the panelists); students not assigned to the case study but attending the tutorial will form the 'audience'. A moderator (one of the TAs) will run the Town Hall.

The town hall will begin with the moderator posing questions related to the case study including (1) facts, (2) positions related to supporters and those opposed, and (3) class material relating to environmental legislation, professionalism, and ethics as they pertain to the case study, and (4) certain social, economic, environmental, and political constraints or motivations. These questions will be directed to both individual panelists and the panel as a group. Ideally, panel members will begin conversations related to certain points, either furthering or disagreeing with points made by the moderator and other panel members.

The moderator will then open the floor to the audience. Members of the audience can direct questions to individual panelists or to the panel as a group. Members of the audience are also encouraged to 'take the floor' to voice their views and/or raise points not discussed by the panel. Further discussion can then ensue. All public figures are expected to contribute to the discussion.

pre-Town Hall discussion submission: the Town Hall panelists will be given several questions relating to the case study one week prior to the appropriate tutorial; responses to these questions (2-3 pages total) must be submitted through myCourses (assignment tab) *by 5 pm of the day **before** the tutorial*. These questions will provide an idea of the type of questions that will be asked by the moderator during the Town Hall.

Secretary (4 page submission):
Two students will serve as secretaries and take minutes from the Town Hall. They will record and summarize responses given by the panelists to the various questions posed (from the moderator and the audience), as well as ensuing discussions. The secretaries will work with the Town Hall panelists in preparing the pre-Town Hall discussion submission (note that the secretaries and public figures are

expected to contribute equally to this submission). The summary of the Town Hall must be submitted through myCourses (assignment tab) *by 5 pm one week from the day of the tutorial.*

Infographic (4 pages):
The infographic will illustrate the fundamentals of the case study as well as the points raised by panel members of the town hall, including important questions raised by the audience. The motivation is to create a visual representation of the case study. The infographic should relay information quickly, and although the text is important, it should be composed of short and concise thoughts. The information should be accessible by someone with no prior knowledge of the case study. Please see www.visualcapitalist.com for examples. The infographic must be submitted through myCourses (assignment tab) *by 5 pm one week from the day of the tutorial.*

Blog (< 600 words):
Two students will co-author a blog. The topic of the blog post must be pre-approved, and will ideally include interviews from either engineers, scientists, academics, or professionals. The blog post must be properly referenced (references are not part of the word count). Students must find appropriate blogs with which they wish to submit their blog post for publication, and make efforts to contact the editor and publish their post. The blog post must be submitted through myCourses (assignment tab) *by 5 pm one week from the day of the tutorial.*

DEBATES

In contrast to previous years, each case study will not feature a debate. However, for interested students, there will be an opportunity to participate in a two-on-two debate on one of the case studies. Debates will take place during the week of 6 March and there will be two debates (i.e., the topics from two case studies will be debated by different groups).

A maximum of 8 students can participate in the debates (4 students per debate/case study). If you sign up for the debates, then you do not need to sign up for a tutorial group.

Three weeks prior to the debate, students will be provided with the debate resolution. Both teams must prepare arguments to support **and** oppose the resolution. Teams will not know until 48 hours prior to the debate if they will form the proposition (affirmative) or opposition (negative). The debate moderator (TA or instructor) will run the debate. Each debate will last about 20 minutes and the following format will be used:

> Introduction and presentation of arguments, 4 minutes for each team
> Rebuttals, 3 minutes for each team
> *2 minute recess*
> Closing remarks, 2 minutes for each team

A coin toss will be used to decide which team begins. Time will be monitored strictly and the moderator will stop teams after their allotted times.

At the end of the debate, the audience will have an opportunity to express their views on the arguments presented by both sides.

pre-Debate submission: Each team will be responsible for composing separately and submitting 2 pages of notes (one page related to arguments relevant to the affirmative position and the other page relevant

to the opposition). Each team must submit this through myCourses (assignment tab) *by 5 pm of the day before the tutorial*.

TUTORIAL SCHEDULE

Introduction
Week of 9 January: Overview of the tutorial, summary of the case studies, presentations, and expectations.

At the end of the tutorial, registration will open for the case studies. You register through myCourses: In the top-right hand corner you click "Groups" and choose both a case study and presentation style. *You register for only **one choice**.* If in the case you register for more than one, you will be removed from all the spots registered for and be asked to re-register. The spots for each case study and presentation style are limited, and once each section is full there will be no possibility to accommodate other students into the section.

Understanding your Case Study
Week of 16 January: Case studies 1 - 4
Week of 23 January: Case studies 5 - 8

Attendance in the appropriate week is worth 5% of your tutorial grade, dependent on both attendance and an understanding of the case study.

Each student will be responsible for reading and understanding between 2 and 3 articles related to the case study *before the tutorial*.

Case Study # (week of)
1. 30 JANUARY: The Canadian oil sands
2. 6 FEBRUARY: Genetically modified foods
3. 13 FEBRUARY: Space exploration
4. 20 FEBRUARY: Drones
5. 13 MARCH: Automation and artificial intelligence OR The ethical dilemmas surrounding self-driving vehicles
6. 20 MARCH: The VW emissions scandal
7. 27 MARCH: Nuclear power
8. 3 APRIL: Cybersecurity and the Internet of Things

QUESTIONS

Questions relating to the tutorial section must first be posted in the discussion thread on myCourses where it can be answered by other students and the TAs. If you feel that the question has not been answered adequately, or if the question or comment is of a personal nature and is inappropriate for the discussion thread, then you may send an email to the appropriate TA (through myCourses).

Corresponding TA
Case Studies 1-2: François-Johan Chassaing
Case Studies 3-4: Meghan Marshall

Case Studies 5,8: Christopher Agellon
Case Studies 6,7: Pengfei Ou

GRADING

The tutorial is worth 47% of your final course grade; moreover, the final exam will comprise several questions relating to each case study as they are discussed in the tutorial. A part of the grade is composed of a peer-evaluation and self-assessment. The peer-evaluation provides an opportunity to both appreciate and be critical of the contributions of your peers in your presentation group. The evaluations, both peer and self, must be completed online *by 5 pm one week from the day of the presentation or submission of the work*.

Note: for the Debate, only members of the same team will evaluate one another. The evaluation is found in the top-right hand corner of myCourses under Surveys, and is due *by 5 pm one week from the day of the presentation or submission of the work*.

The 47% is distributed as follows, and is dependent on your presentation group:

- 5% Participation in "Understanding your Case Study" tutorial.
- 7% Peer-evaluation (within each presentation group or team)
- 5% Self-assessment
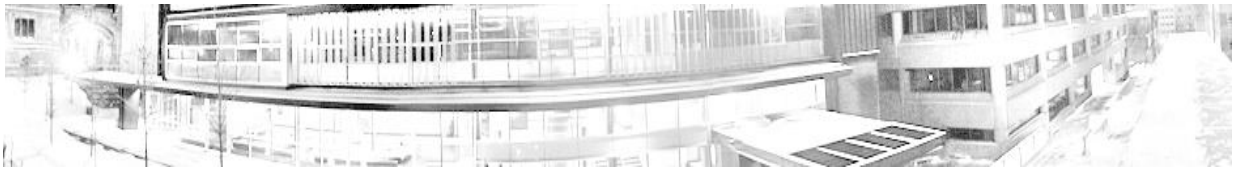
Video, Article, or Infographic
- 30% Project

Town Hall, Secretary, or Debate
- 10% pre-Town Hall / pre-Debate submission
- 20% Town Hall discussion or debate

Blog post
- 25% Blog post
- 5% Efforts to publish the blog post

McGill

Faculty of
Engineering

FACC 100 Introduction to the Engineering Profession
Fall 2017

ASSIGNMENT 3 – DEBATES, VIDEOS, AND POSTERS
VERSION 1.0

Distributed: Mon Oct 2 or Fri Sep 29
Due: Mon Oct 23 (debates)/Nov 27 (videos and posters) or Fri Oct 20/Nov 24 (videos and posters)

DEBATES
N.B. The following is relevant only for those participating in the debates.

TASK

For this assignment, you will investigate a current or recent global engineering issue in the form of a debate. The debate topic will be finalized by the participating students by Mon Oct 9 or Fri Oct 6; **the debate will take place in-class on Mon Oct 23 or Fri Oct 20.** Possible topics include the following:

1. The VW emissions scandal
   Sample debate resolution: "Be it resolved that the public (global) response to the emissions scandal shows a general lack of concern for the environment"

2. Artificial Intelligence: Musk vs Zuckerberg
   Sample debate resolution: "Be it resolved that…"

DEBATE LOGISTICS

The debates will follow the *team policy* format (http://www.csun.edu/~dgw61315/debformats.html). One team represents the proposition side (or affirmative side) while the other represents the opposition (or negative side). Each team can comprise a maximum of **four** students/debaters. The debate will comprise of 8 speeches in total, 4 by each team (teams are free to decide who gives the speeches, but there must be at least two different speakers). The first four speeches are *constructive* in nature where arguments supporting each side are made. The last four speeches are *rebuttals* where arguments already presented are extended or applied (no new arguments can be introduced).

The proposition team begins and ends the debate while the opposition team gets two speeches in a row. The timing and order of the speeches is as follows:

1. Proposition team, constructive, 4 mins
2. Opposition team, constructive, 4 mins
3. Proposition team, constructive, 4 mins

4. Opposition team, constructive, 4 mins
5. Team discussion, 3 mins
6. Opposition team, rebuttal, 2 mins
7. Proposition team, rebuttal, 2 mins
8. Opposition team, rebuttal, 2 mins
9. Proposition team, rebuttal, 2 mins

The total time per debate is 30 mins (including presentations and polling).

Debate teams may use Powerpoint for their presentations; in this case, please send the material to the instructor by email by 5 pm the day before the debate.

The moderator (one of the TAs or the instructor) will run the debate. If speakers exceed their allocated time, the moderator will cut them off and ask them to sit down.

Following each debate, the class will be polled regarding which side presented the highest quality arguments and made the most convincing case.

DEBATES

Participation in the debates will be on a volunteer basis. Space is limited (up to 8 can participate as debaters) and will be allocated on a first-come, first-serve basis. If you have not already done so and if you would like to participate in the debate, please send an email to the instructor (lawrence.chen@mcgill.ca).

GRADING

The assignment is worth 17.5% of the final grade.

Students that participate in the debates will receive automatically 7.5 marks for participation; the remaining marks will be based on the presentation of the statements for the side of the debate that they researched and presented. Each debater must submit an individual written paper (12 point font, 1 inch margins all around, 1 page maximum) that summarizes their position on the debate and their arguments. The paper should be submitted as a pdf file through the Assignment tab in myCourses by Mon Oct 23 5 pm or Fri Oct 20 5 pm.

References (information on reference formatting is provided at the end of this document) should be used and included to back up arguments and data or statistics that are provided.

VIDEOS OR POSTERS

N.B. The following is relevant only for those participating in the debates.

TASK

Describe how engineers from at least **two different engineering disciplines** must work collaboratively with people in non-engineering fields, e.g., medicine and health science, social science, humanities, etc., in order to **address the challenges of an engineering project**, e.g., you can pick one of the engineering challenges identified by the National Academy of Engineering (to be presented in class 5 on Mon Oct 16 or Fri Oct 6).

GENERAL INSTRUCTIONS

- The assignment will be completed in groups of 4 to 6 students.
- You will be assigned to a group randomly and must work with the other members of your assigned group. The groups will be announced on Mon Oct 23 or Fri Oct 20.
- There will be a team building activity in class on Mon Oct 30 or Fri Oct 27; this will give you an opportunity to meet with your team members and begin your interactions. Each group should designate a contact person and this contact person should notify the instructor via email.
- You can produce **either** a *poster (with presentation)* or a *3-4 minute video*.
  - Groups can indicate a preference for a poster or a video; however, the number of posters is limited to 15 and there is no guarantee that your group preference can be accommodated.
  - Posters will be assigned on a first-come, first-serve basis.

POSTER OR VIDEO PRESENTATIONS

- There are no specific requirements for producing the poster nor video and a professional-looking poster or professional-quality video is not expected nor required. For example, you can simply stick printed pages arranged onto a Bristol board or record the video using a smartphone.
- General guidelines for the poster and presentation:
  - The typical size for a poster board is about 2' – 3' high and 3' – 4' wide.
  - Use a large font size (e.g., 32 point) to ensure that any text is visible from 1 meter away.
  - A title will be useful to attract attention; ensure that the title is clearly visible at the top (an even larger font size (e.g., 48 point) can be used.
  - Include the names of all group members (under the title).
  - Include a list of references (if used).
  - During the poster session, ensure that there is at least one group member (poster presenter) within the vicinity of the poster to answer any questions from the audience/viewers. Poster presenters can also engage the audience/viewers directly (i.e., offer to present the contents of the poster) rather than wait for questions.
- General guidelines for the video:
  - The video should not last more than 4 minutes.
  - The video should be uploaded by the group contact person via myCourses (one submission per group).
  - The video can include a narrative, interviews, or edited segments from previously developed/published videos. A list of references acknowledging any previously developed/published material should be included in the submission.

o The videos will be posted on the course webpage for general viewing by the class.

EVALUATION

- This is a reflective exercise and by the end of the assignment, I hope that you will have a better appreciation of the inter-disciplinary nature of engineering.
- The poster or video will be evaluated by the instructor and the TAs.
- Your poster or video will be evaluated in the following two categories:
    o *Content and organization*
        - The poster or video describes the topic in a clear manner, i.e., the engineering project as well as the engineering and non-engineering disciplines needed.
        - The need for engineers from at least two different engineering disciplines as well as members from at least one other non-engineering discipline to work collaboratively on the project is clearly justified and the discussion is well-organized (i.e., the arguments as well as their flow is clear).
    o *Presentation*
        - <u>Posters</u>: The poster is clear and the content can be followed in a logical manner; text is legible; graphics, figures, tables (if used) can be viewed easily.
        - <u>Videos</u>: The video is easy to follow. **Note that marks will be deducted if the 4 minute limit is not respected.**

TEAM EVALUATION

- A second objective of this assignment is to provide you with an opportunity to see how you work in a group/team. In this context, you will assess your own contribution to the assignment as well as those of your group members. This assessment will be based on completing Table 1 shown on the next page (a copy of the table will be made available directly on myCourses).
- Each student must submit a completed copy of the Table directly via myCourses by 5 pm on Mon Nov 27 or Fri Nov 24.

GRADING

- The overall grading for the assignment will be based on the evaluation of your poster or video (85%) and your peer and self-assessment (15%).
- All group members received the same grade in terms of the poster/video evaluation.
- Assignment 3 is worth 17.5% of your final grade.
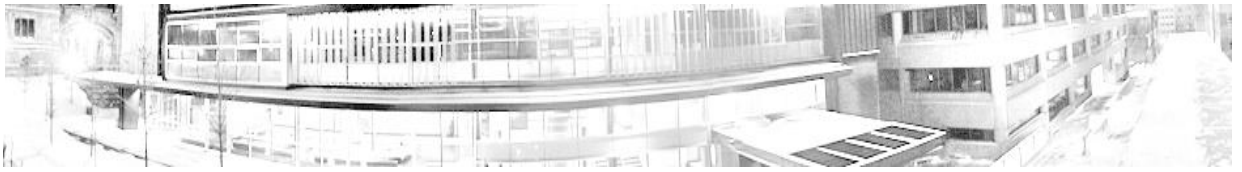
REFERENCES

Sources should be cited according to the McGill APA Citation Style Guide, see
https://www.mcgill.ca/library/services/citation/guides-0.

Each source should be provided within your text and there should be a corresponding entry in the list of references at the end of the paper. Note that course slides are not acceptable references.

In-text citations
- The following format should be used for citing sources within the text:
  - ➢ Single author: (Barns, 1999); two authors: (Smith and Frank, 2004)
  - ➢ Information from websites should still be given under an author (or organization) in the text, plus the date of publication, or the date accessed, e.g., (Fulton, 2002) or (UNICEF, 1998). Do not quote the url in the text, but give it in the list of references.
  - ➢ If two or more sources have the same author (or organization) and date of publication, use letters to differentiate between them: (Peters, 2005a); (Peters, 2005b). Use the same letter notation after the date in the list of references at the end of your discussion.

Reference list
- A reference list includes only those sources that you cite in the text of your discussion.
- A reference list is presented in alphabetical order – beginning with the last name of the first author (or, if the author is unknown, the name of the organization). Note that only the authors' first initials are given.
- A reference entry is arranged by date if two or more works by the same author are listed— beginning with the earliest date.
- A reference list is not numbered.
- Do not separate journal articles, books, and websites.
- If the source is a website, the following format should be used in the list of references:
  - ➢ Private organization, no author, no date:
    West Nile Virus (n.d.) Retrieved September 1, 2005, from http://www.west-nile-virus-prevention.com/index.html
  - ➢ Document with author and date available on an organization's website:
    Hallengren, A. (2001) A Case of Identity: Ernest Hemingway. Retrieved August 5. 2005, from Nobelprize.org, The Official Web Site of the Nobel Foundation: http://www.nobelprize.org/nobel_prizes/literature/laureates/1954/hemingway-article.html

For more details, including the format for other types of sources in the list of references, refer to the McGill APA Citation Style Guide (link given above).
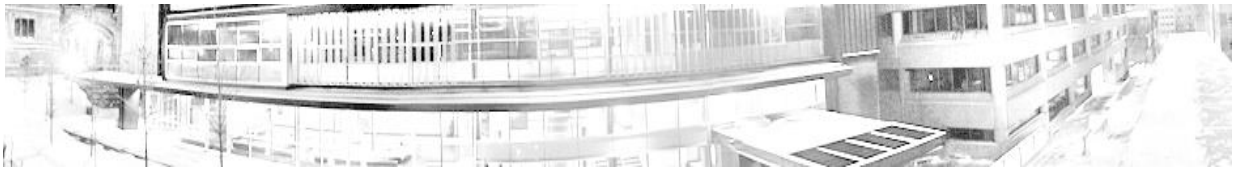
Table 1. Peer and self-assessment for Assignment 3.

Criteria	Yourself	1.	2.	3.	4.	5.	6.	7.
Write the name of your group members in the numbered boxes. Assign yourself a value for each listed attribute. Do the same for each of your group members.								
Values: 1 Seldom 2 Sometimes 3 Usually 4 Always								
Co-operation								
Worked cooperatively with other members of the group and was willing to help with any task.								
Respect								
Listened to others' ideas, considered their points of view and offered constructive suggestions.								
Effort								
Contributed as much as could to group discussions and to the work required.								
Responsibility								
Worked responsibly and to the best of your/his/her ability on contributions to the task.								
Task Commitment								
Was able to focus on what the group needed to do throughout the process of the task and kept working even when something was challenging.								
Problem Solving								
Used good problem solving strategies throughout the process of completing the task.								