Individual Contribution Document

50% of your overall grade - Individual Submission

Due Friday, Nov. 18th, 2022 by 8pm ET on LEARN as a single PDF document.

5 pages maximum + references

Section 1: Technical Engineering Contribution /30

3 Page Maximum

Every team member should have made a technical engineering contribution to the course project. That means everyone should have done one, or a combination, of the following things:

A. applied knowledge gained in engineering courses from your degree in the form of analysis, modelling, decision making, or calculations.
B. applied a scientific approach to testing and evaluation of design prototypes.
C. used the tools of engineering to develop prototypes or designs.

At this point in the project (A) is likely the most possible. You will have more opportunity to apply science in SYDE462 as your prototype develops, so where you are in the overall project will be taken into consideration. Document your strongest technical engineering contribution while addressing the following components:

0.5 page:
Nature of Contribution: What was the nature of your contribution? Describe the contribution in reference to the basic definition of Engineering as “applied science”. Why is this a Systems Design Engineering contribution?

1 page:
Impact on Prototype: What effect/impact did it have on the prototype? Where specifically was it applied?

1.5 page:
Verification/Evaluation: How do you know you did the work correctly? How did you verify/evaluate your work? Provide specific evidence that you did things correctly.

No appendices.

Section 1 Grading:

Nature of Contribution: /5
Better submissions will:

- describe directly and specifically how your contribution can be understood as applying science.
- connect the contribution to courses or discuss where specific engineering methods were developed (like on a co-op job).
- effectively communicate the ideas in a professional tone.

Impact on Prototype: /10
Better submissions will:

- include high quality engineering contributions of significant depth.
- be accurate in terms of the included technical aspects of the contribution in its application.
- specifically document the contribution's impact through text and graphics.
- effectively communicate the ideas in a professional tone.
- include enough detail to allow the reader to understand how this impact will affect the project moving forward.

Verification/Evaluation: /15
Better submissions will:

- provide specific evidence and discussion of how the application of engineering was done correctly. If you are applying existing knowledge, how do you know you did it correctly? If you applied a scientific method, are you sure your results can be trusted?
- specifically document the evaluation/verification through text and graphics.
- effectively communicate the ideas in a professional tone.

Total: /30

Section 2: Communicating Learning /10

1 Page Maximum

In one page explain a new concept you learned in this project. Imagine the audience is a student who is in next year's class and has just started the term. Choose a technical engineering concept that you personally have applied in your project.

Use a combination of text and graphics/images to create this component.

Better submissions will:

- be accurate in terms of the technical details of the topic
- effectively communicate using both text and graphics
- allow a reader to walk away without any major introductory questions about the topic
- be well evidenced and sourced
- be legible when printed as a standard letter sized piece of paper

GRADING RUBRIC /10
0-4: Unsatisfactory (clearly below standard for a 4th year level SYDE student, or missing components);
5: Marginal (meets minimum expectation, but not more);
6: Satisfactory (demonstrates basic design and engineering understanding of the situation of concern);
8: Very Good (demonstrates above average design, communication, and engineering effort and understanding of the situation of concern);
9: Excellent (exceeds expectations);
10: Outstanding (I think this component is award-worthy).

Section 3: Ethics /10

1 Page Maximum

In one page discuss the ethical implications of your design with reference to the Tech Risk Zones presented in W05. Use any 1 of the cards except for “Exclusion” and “Surveillance”, which you should have already discussed with your team.

Better submissions will:

- discuss the topic in terms of short term and long term effects
- discuss the topic in terms of local and global effects
- provide evidence that supports your ideas which is high quality and up to date
- go beyond superficial high level details of the topic
- effectively communicate using both text and graphics the nature of the ethical aspects of your project and how they relate to society
- demonstrate an understanding that will allow you to fulfill the obligations of an engineer to safeguard the public and the environment

GRADING RUBRIC /10
0-4: Unsatisfactory (clearly below standard for a 4th year level SYDE student, or missing components);
5: Marginal (meets minimum expectation, but not more);
6: Satisfactory (demonstrates basic design and engineering understanding of the situation of concern);
8: Very Good (demonstrates above average design, communication, and engineering effort and understanding of the situation of concern);
9: Excellent (exceeds expectations);
10: Outstanding (I think this component is award-worthy).

Section 4: Include a Reference section for the entire document.

As many pages as you need.

No appendices.