

# Interdisciplinary Capstone Design

## Design EXPO Technical Presentation

### Assignment Goal

To present a *complete* overview of your capstone design project to a live audience with mixed technical backgrounds.

### Learning Outcomes

As a result of completing this assignment, you should be able to:

- Clearly explain the value proposition and objective of your project.
- Articulate the major challenges encountered during the project and how they were resolved.
- Demonstrate the key attributes of your final design and how the design has been validated to meet the customer requirements.

### Relevant ABET Learning Outcomes

1. An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.
2. An ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors.
3. An ability to communicate effectively with a range of audiences.

### Rationale

To be able to increase the impact of our work as engineering designers, we need to be able to communicate the methodologies we have used and explain how the new design will help in solving a real-world problem. Our presentations need to be technical, but also understandable for a wide range of audience members, including those which are not technically inclined.

### Task

Working in your capstone team, you are assigned to organize and perform an orally delivered presentation summarizing your capstone project at the Annual Engineering Design EXPO.

The suggested approach for **organizing** your presentation is:

- 1) Construct a set of MS PowerPoint slides to anchor your presentation.
- 2) Structure your slide-show presentation to cover the following topics:
  - The single objective of your project.
  - The value proposition for your project (including articulation of the real-world problem you are working to help solve).
  - The background and customer/product requirements for your project.
  - An overview of the conceptual development process and evaluation of concepts.
  - A detailed review of key attributes in your final design and how they enable the design to meet the requirements.
  - A description of the manufacturing processes used to build the prototype, with particular focus on any unique challenges faced or processes used.
  - A summary of the validation approach used to confirm the prototype meets the requirements.
  - Recommendations for adoption or future development of the design.
- 3) In addition to slides, consider presenting any of the following to support your presentation:
  - A physical representation or demonstration of the prototype
  - Videos illustrating how the prototype works via animation or physical demonstration
  - Evidence or data supporting validation of the prototype

The suggested approach for **performing** your presentation is:

- 1) **Choose** team members which are competent and well-versed in the project for speaking roles.
  - a. It is **not** a requirement for every team member to speak
  - b. Choose team members to represent their respective disciplines or expertise for different aspects of the project.
- 2) **Plan** to deliver your presentation is **~12-17 minutes**, allowing additional time for audience questions and discussion. *Note: This time frame typically corresponds to ~10-20 slides.*
- 3) **Speak** at a moderate pace and use language which is easily understandable for a wide range of audience members. Be aware of the audience and adjust to their non-verbal feedback throughout.
  - a. Talk in a conversational voice and tell the “story” of your project
  - b. Avoid the temptation to read your slides to the audience.
- 4) **Ensure** that you are speaking synchronously with your slides and other visual aids.
  - a. A good strategy is to make your slides highly visual with pictures, graphs, tables, etc. and use your commentary to enhance the message.
  - b. Make sure that each slide “stands alone” and provides a simple message or *key takeaway*.
- 5) **Dress** and **conduct yourself** in a professional manner.

Logistical requirements:

- A. Be sure to **load** any files (e.g. PowerPoint slides) on the laptop in the presentation room prior to the beginning of your session.
- B. **Arrive** in the room for your presentation at least 10 minutes in advance of your talk.
- C. **Allow** your lead instructor to review your slides and provide feedback before the day of your presentation.

## **Assessment**

The technical presentation will be assessed via a panel of 3-10 judges from outside of the capstone design program (typically from external industry partners). Judges will evaluate and score the presentation for each of the following criteria on a scale of 1 – 5. The characteristics of an excellent technical presentation (score of 5) are provided in parentheses.:

- a) **Context** – (Clearly articulates the “big picture” and conveys the value proposition)
- b) **Organization** – (Thoughtfully ordered for the intended purpose uses effective transitions)
- c) **Evidence** – (Conveys credible data and analysis to strongly support the conclusion or solution)
- d) **Visual Aids** – (Well-designed graphics with labels and easily visible for the audience)
- e) **Delivery** – (Uses professional language and style to capture the attention of the audience)

Judges will also be given opportunity to provide written comments intended to be constructive feedback to the team.

Teams receiving the highest average scores from the judges will be awarded as the “**Best Technical Presentation**” from their respective session, and will be eligible to win “**Best in Show**” across all of the capstone projects presented at the Engineering Design EXPO.