

Interdisciplinary Capstone Design Portfolio

Assignment Goal

To maintain a written record of your own product development throughout the duration of your project.

Learning Outcomes

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

- Organize all your documentation to capture the evolution and development of your design solution.
- Record all engineering activities related to the project, making it easy to retrace your steps in the development of your solution.

Relevant ABET Learning Outcomes

1. An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.
2. An ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

Rationale

Engineering design inherently involves development and synthesis of ideas to create a new solution to a problem (or challenge). As a result, engineers need to document all their work to demonstrate good practices as engineers, but also create a retraceable record of their work, which may help to prove ownership at a later date. The capstone portfolio gives you a framework for capturing all the team's documentation in a consistent and easily navigated manner.

Task

As an individual, you are assigned to organize and maintain a design portfolio to capture all of the documentation generated by the project.

The required approach for **organizing** your portfolio at the beginning of the project is:

- 1) Select a Format from the options listed below under "Formats".
- 2) Create a folder structure which matches the rubric below under "Assessment": Problem definition, Project Learning, Project Management, Design Solution, Implementation/Manufacturing, Design Validation, and Final Design Documentation.
- 3) Archive all documentation created by the project into these folders respectively.
 - a. Ensure that your filing system is logical and easy to navigate.
 - b. You are welcome to create subfolders as needed to further distinguish document types.
- 4) Email your lead instructor with a link to your electronic Portfolio folder structure upon request.

The required approach for **maintaining** your budget is:

- 1) Always keep the Portfolio up to date. File any new documents created into the appropriate folder.
- 2) Transfer files from personal workspaces to the shared Portfolio to ensure that all the documentation is centralized in one place.
- 3) Email your lead instructor with a link to your electronic Portfolio folder structure upon request.

Format

Create a project-specific folder in **OneDrive** and share it with your teammates, instructor, graduate student mentor (if applicable) and your client (if applicable).

Assessment

The team Portfolio will be submitted to the lead instructor on multiple occasions through the project. Logbooks will be reviewed the lead instructor and scored on a 1-5 scale based on the following criteria:

Rubric

Capstone Portfolio Review Form

Maintain a One Drive or Teams file system with the following headings. Bold Items under each heading are required. Other items are suggested when appropriate.

Team:

Date:

Scoring:	1	2	3	4	5	NA
	Missing	Poor	Fair	Good	Excellent	not applicable

1 - Problem Definition _____

(includes **client problem statement, value proposition, client interview notes, product requirements (with measurable specs)**)

2 - Project Learning _____

(includes archive of references/manuals, data sheets, websites, literature review notes, engineering analysis, preliminary experimentation/useability studies, software tool development, concepts under consideration, dissection of existing products, **Snapshot #1 slides**)

3 - Project Management _____

(includes **team contract, meeting minutes (in sub-folder), client communications, schedule, budget, and receipts (in sub-folder)**)

4 - Design Solution _____

(includes system diagrams, identification of sub-systems, description of key features, partial proof of concept prototypes, assembly and part models, logic diagrams, component selection & sizing, user interface design, **Conceptual Design Review slides, Snapshot #2 slides**)

5 - Implementation/Manufacturing _____

(includes **Bill of Materials with chosen vendors and costs, engineering drawing package, manufacturing plan, special tooling, code development/documentation**)

6 - Design Validation _____

(includes **Design Validation Plan, experiment design, data collection, and data analysis**)

7 – Final Design Documentation _____

(includes **final report, final presentation, drawing package -in PDF format, Expo Poster**)

OVERALL _____

Reviewer Comments: