Interdisciplinary Capstone Design
Logbook

Assignment Goal
To maintain a written record of your own personal growth and development of knowledge throughout the duration of your project.

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

- Organize and synthesize your thoughts to create logical action plans to keep the project progressing.
- Monitor the activities of yourself and other team members to maintain accountability.
- Conduct engineering analysis and trade-off evaluations to facilitate decision making.
- Reflect on experiences, assessing the current status and identifying any corrective actions needed for the project.

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 acquire and apply new knowledge as needed, using appropriate learning strategies.

Rationale
High performing individuals in all professions are similar in that they: a) monitor and control where they invest their time, b) learn and apply best practices for their profession, and c) regularly take time to learn from their successes and setbacks. This activity will help to develop good practices for the engineering profession in product development and personal growth.

Task
As an individual, you are assigned to **maintain** a detailed engineering logbook (or Laboratory Notebook) to capture your personal thoughts, ideas, reflections, and project management activities related to the project.

Guidelines:

A) Hard copy logbooks should be bound so that pages cannot be inserted or removed, written in ink, dated, and fill consecutive pages in chronological order.
B) Create a Title and record the Date for each page.
C) Record each entry in the Table of Contents (reserve 3-4 pages at the start).
D) Write every entry in Ink. Do not ever erase any entries.
E) Do not remove or skip any pages
F) Avoid backfilling.
G) Organize and format to enable future reference of ideas and content.

Every logbook should contain entries related to the following:

1) Personal notes from meetings with team members, keeping track of who is doing what and when things will be accomplished.
2) Personal reflections about how things are going and what could be done to improve.
3) Any ideas that are brainstormed, either by the team or on their own. Include detailed sketches, labels, annotations, etc. so they are understandable and can be referenced later. Capture ALL ideas, regardless of how good you think they may be.

4) Engineering calculations that help you with decision making, engineering evaluation, virtual verification of the design performance, or another supporting analysis to help you gain confidence in your design ideas.

It should be a goal to produce ~4-7 thoughtful entries per week supporting your design process:

a) ~20% of entries – planning, team communications, meetings, etc.
b) ~70% of entries – evidence of project learning and development
c) ~10% of entries – Reflection on individual, team, and product performance

Formats

Several formats are acceptable for this class, and in the profession:

1) Hard bound book with handwritten entries.
    a. This approach is handy, as you can carry your logbook with you anywhere you go.
    b. Less conducive to adding captured images of 3D models or pictures.
2) Electronic logbook using MS OneNote.
    a. Automatically date stamps entries and can be easily exported as a pdf file.
    b. Not as easy to carry around in your hands or backpack.
3) Combination: bound book with electronic archiving. Tools like a Rocketbook can be very effective.
    a. Let's you carry around a bound book for easy access to capture thoughts "on the run".
    b. Using an App, you can export entries to an electronic archive, cloud, or email.
    c. A Rocketbook can be purchased on Amazon for ~$20.

Assessment

Each team member will submit their own logbook (electronically) on several occasions through the project. Logbooks will be reviewed the lead instructor and scored on a 1-5 scale based on the following criteria:

- **Project Management** – Does the logbook capture project and team member actions to maintain progress?
- **Design Development** – Is there evidence of concept generation and engineering analysis to support the project?
- **Assessment** – Is there personal reflection on the project and continuous improvement being applied to foster personal growth?
- **Organization** – Is the logbook organized well enough to enable future reference of the ideas and content?