

## Foundations of Engineering - Modified from [Unit 1- Engineering Design Process](#)

### Targeted Goals from Stage 1: Desired Results

- Design Process: Describe and apply the design process to identify and solve a problem.
- Utilize the design process; including defining a problem, brainstorming, researching and generating ideas, identifying criteria and specifying constraints, exploring possibilities, selecting an approach, developing a design proposal, making a model or prototype, testing and evaluating the design using specifications, refining the design, creating or making it, and communicating processes and results.
- Students will develop an understanding of engineering design.
- Explore and hone techniques, skills, methods, and processes to create and innovate
- Demonstrate professionalism through exhibiting attentiveness, growing from feedback, and adhering to industry standards (safety).

### Skills:

- Utilize the Engineering Design Process to develop a solution to a given challenge/problem.
- Express technical knowledge used in solving a problem in a clear, concise, and coherent manner within an engineering report.

**Expectation:** Students will have their second opportunity to apply the engineering design process in solving a problem/challenge.

Description of Task (s):	Resources and Materials:	Daily Checks (Return to Google Classroom or snapshots from a cell phone)
<b>Monday:</b> Introduction to engineering challenge # 2	-How do ships float video  -Hull shape performance video  -Archemedes principle video  -Aluminum Foil Boat Design video  -Challenge 2 Aluminum Foil Boat	-Partial class meeting (demo)- recorded for students who cannot attend  -Submit Challenge 2 Worksheet
<b>Tuesday:</b> Work on engineering design process steps # 1-5.	-Class Engineering Design Process Note Card  -Engineering Design Process Worksheet	Share your EDP progress daily for feedback against the criteria  -Complete

Description of Task (s):	Resources and Materials:	Daily Checks (Return to Google Classroom or snapshots from a cell phone)
<b>Wednesday:</b> Continue working on engineering design process steps # 1-5.		-Small meeting conducted at beginning of class to review and to provide feedback for students that need assistance
<b>Thursday:</b> Complete steps 1 - 7 of the engineering design process activity (Includes data collection and iteration/s).	-Challenge 2 data collection	-Complete and turn in Challenge 2 data collection
<b>Friday:</b> Complete engineering design process by communicating your solution results (#7).		-Complete and turn in final EDP for challenge 2  -Complete Challenge # 2 exit slip

**Week criteria for success** (attach student checklists or rubrics):

- Challenge 2 Worksheet
- Engineering Design Process Worksheet
- Challenge 2 data collection
- Challenge # 2 exit slip

**Supportive resources and tutorials for the week** (plans for re-teaching):

- Engineering Design Process presentation
- Engineering Design Process “Notes Sheet”
- What is Engineering Design?
- How to calculate Bouoyancy video