Design Process – Problem Definition

Self introduction:

- **In a single slide (1 minute)**: Introduce yourself. Your interests, hobbies, skills, etc.

Idea Generation:

- **In 3 additional slides (2 minutes total)**: Present 3 initial ideas for your capstone project according to the instructions below.

General Description (Framework):

- **Scope** - *Individually*, you are expected to define problems to be addressed for your senior capstone project along with initial conceptual design of how you would solve them.
- **Problem Origination** - Problems should *not* be created simply to solve them, they should already exist and be meaningful to solve.
- **Time Size** - The size of your teams 6-7 individual students
- **Knowable Scope** - The level of knowledge/experience of yourself and your team members (senior mechanical engineering students)
- **Timeline** - Timetable (just under two quarters while juggling other classes).

Detailed Description:

- Come up with 3 ideas for problems to solve and initial conceptual design to solve them.
    - 1 idea where you are invested/interested in the technology/techniques used to solve the problem.
    - 1 idea where you are invested/interested in the application/end outcome of solving the problem.
    - 1 idea of your choosing.
- Create 3 slides, summarizing each of the problems/proposed solutions (1 slide each). Upload to CCLE by 12PM on 1/6.
- Present your ideas to the class during discussion on 1/6-1/7. Each student will present for 3 minutes – one slide per min.
- Each Problem (per slide) should be addressed using the following guidelines
    - **Explicate the Problem**
        - **Formulate the Problem Precisely** - Describe the problem in a precise but also concise, easily understandable manner.
        - **Position and Justify the Problem** –
            - **Context** - Clarify in which practice the problem appears. Explain why the problem is important and to whom.
            - **Ensure the Problem Is of General Interest** - Make clear that the problem is of interest not only to a local practice.
            - **Ensure the Problem Is Solvable** - Define and analyze the problem so that it becomes small enough to be solved.

- **Post Assignment -** Following the individual presentation in class, form a sub-team of 3 (preferable) or 4 (maximum) members within your own section. Watch the posted introductions/ideas for members of the other section. Keep in mind your respective time zones/availability to meet, your interests, and if your skills/experience complement each other's. One member of each sub-team must fill out the Google Form provided in an email to the class by 11:59PM Sunday of Week 1.