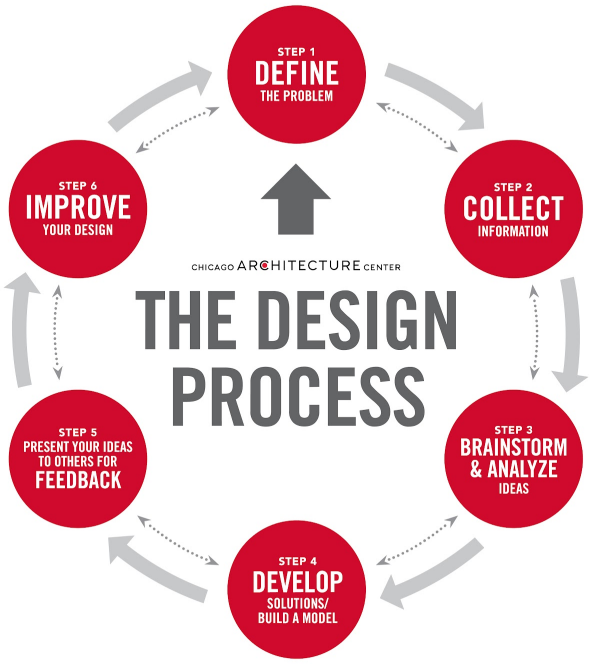
The Design Process

Description: Teach students what the design process is and how to apply it to real world scenarios.

Teaching - The Design Process (6 Steps)

1. **Define** the Problem
    a. This is the first and most important part of the design process
    b. Understand the problem that needs to be solved, who the design product is for, and why it is important to find this solution
    c. Understand what the constraints and limitations are
2. **Gather Information**
    a. Use the experience and designs of others to explore possibilities to solve your problem
    b. Research past projects and speak with people from various backgrounds to avoid problems you may face and find solutions you may not have considered
3. **Generate** Concepts
    a. Here, you must brainstorm possible solutions based on your research before opting to start a design
    b. Build a list of as many solutions as possible and let your ideas flow
4. **Develop** Solutions
    a. In this step, you would actually design and prototype your solution to the problem
    b. The idea you build should be your favored one from the Generate Concepts step
5. **Gather** Feedback
    a. Gather opinions from others on your design including its feasibility, efficiency, and how it holds up to certain constraints
    b. It's important to get the opinions from others to find flaws you may not see yourself
6. **Improve** your design
    a. Based on your feedback, go back to Develop Solutions and create another prototype for your problem
    b. This is where the Design Process rotates in a cycle until you have the best designed product possible

Design Process Image



Teaching - The Design Brief

1. What is the Design Brief
    a. The Design Brief is a documentation method used in many professional engineering fields.
    b. It is simply like a “profile” or “biography” for a design.
2. Examples
    a. One example of the application of the design brief in a professional environment would be in the field of architectural engineering.
        i. Architects use this whenever proposing a design, whether it is a bridge or a skyscraper, stating constraints/budget
    b. Another example of the application of the design brief in a professional environment would be in the field of automotive engineering

i. Automotive Engineers use this when designing a new vehicle, and they state the features/capabilities of the vehicle.

InkEdu Design Brief

Client Info

- Your Name
- Your Street (Use Imaginary Address)
- Your City
- Your Country
- Email Address

Project Info

- Your Project
- Your Future Goals (Add-ons to the prototype)
- Your Build Budget (Constraints and estimated cost to build prototype)

Building Details

- What sort of building do you want? (i.e. house, store, workshop, pub) Specify type of bridge
- How do you want the building to feel in the environment? (Different design types in a city, beach, and forest)

Guiding Questions - Design Process and Documentation

1. What is the Design Process?
2. What is the Design Brief?
3. Why are the Design Process & Design Brief (Documentation Process) essential to an engineer?
4. Where is the Documentation Process applied in the real world?