

# IDEA

Illinois Design Educators Association



## IDEA Engineering Design Brief

IDEA Engineering Design Competition

2022

### **Dorm Room Portable Bathroom Supply Caddy Project**

**Problem Statement:** Your older sibling attends college and has complained about sharing a bathroom with their roommates. They have a hard time keeping their bathroom supplies organized, accessible, secure, and portable. They know you are taking a high school engineering design class and will be attending college in the near future to study engineering and they have challenged you to solve this problem.

The problem is that the average college student has a terrible time keeping his/her dorm bathroom supplies organized and clean. They have trouble keeping all supplies together and accessible when sharing a dorm bathroom with a roommate or whole floor.

Colors on the product must be appropriate and show school identity/spirit.

It must be able to be personalized.

Must consist of at least 5 parts.

Must be sanitary and easily cleaned.

Each part must be assigned appropriate materials.

The design must be portable and hold the following items.

- Standard size bar of soap or soap product
- Shampoo/body wash
- Toothpaste and toothbrush
- Comb or brush
- Deodorant
- Must be affordable—under \$20
- An item of your choosing
- Phone
- It will be a unique product, not a copy of an existing product—it may share features.

### **Procedure:**

Your team, made up of 3 members, will focus on completing a product solution and presentation to present your firm's design solution to the client. Upon arrival to the IDEA competition, all members of the firm should come prepared to give a presentation of their project solution to a panel of judges. Your firm should arrive at the competition with the presentation and project solution completed ahead of time. The presentation should include:

### **Deliverables:**

- Design solution/Product
- Engineering Notebook documenting the design process and your design solution.
- A Gantt Chart documenting the solution process and activities involved.
- A full set of engineering drawings for the solution using AutoCAD, Inventor, SolidWorks, etc.
- Bill of Materials-BOM
- Cost estimate-- Profit/Loss analysis
- Product plan of procedure or assembly instructions and visuals that your clients can follow.
- Packaging for the product.
- A prototype of your solution
- Any additional information or documentation needed to communicate the design solution.

### **Display:**

- Display Board that is maximum of 28" X 40"
- Present your product with a medium of your choice.
- Title and description of the Engineering Design competition and your design solution.
- Documentation of the design process and your design solution

## **Presentation:**

Your team will have up to 10 minute for the presentation of your product including your design, unique features of your design, estimated cost to produce, and lessons learned through the design process. A 5-minute question and answer period may/will follow your presentation.

## **Other documentation:**

To be considered for an interview a resume and business card from each team member must be presented to the judges.

## **Judging Criteria:**

Judges will rate the following criteria based off of information learned through the presentations and the design solution.

1. Quality and Clarity of Presentation	20%	20 pts
2. Quality of the Engineering Notebook	20%	20 pts
3. Functionality and Practicality of the Design Solution	20%	20 pts
4. Technical Quality of Documentation and Drawings	20%	20 pts
5. Technical Quality of Prototype	10%	10 pts
6. Meeting of Presentation Time Requirements	5%	5pts
7. <u>Resume &amp; Business Card</u>	5%	5pts
_____	100%	100 pts

Each category above will be rated on a scale of one (poor) to max points (excellent).