

# CAREER READINESS

## MAKING A LEGACY

393Z



Me and an Edwards Lifesciences R&D Engineer



## MY DREAM

Growing up, I recall some would ask me what I wanted to be when I grew up. My immediate answer was always a princess. Some of my family members would tell me that it wasn't ideal, but I disregarded them. It was my dream to be a princess. As I matured and gained more exposure to career options, I wanted to be a **cardiothoracic surgeon**. Several of my family members have suffered from heart problems. Currently, my dad is getting treatment for his heart. I've gone through loss and hurt but in the end, there was inspiration that lingered. An inspiration that unfolded. I was inspired to learn about the heart, arguably the most interesting system in our body. My inspiration led me to persistently pursue a STEM profession in the medical field. Searching for a company with similar motives, I found Edwards Lifesciences.



\*Little me at BabyBoss Taiwan pretending to be a cardiothoracic surgeon

## THE COMPANY

**Edwards Lifesciences** is a technology company that develops medical tools, specializing in artificial heart valves and hemodynamic monitoring. They strive to find solutions to structural heart disease and maintain critical care monitoring. Edward Lifesciences uses the engineering design process in its products. Edward's innovation has caused their success of being a leader in the technology medical field.

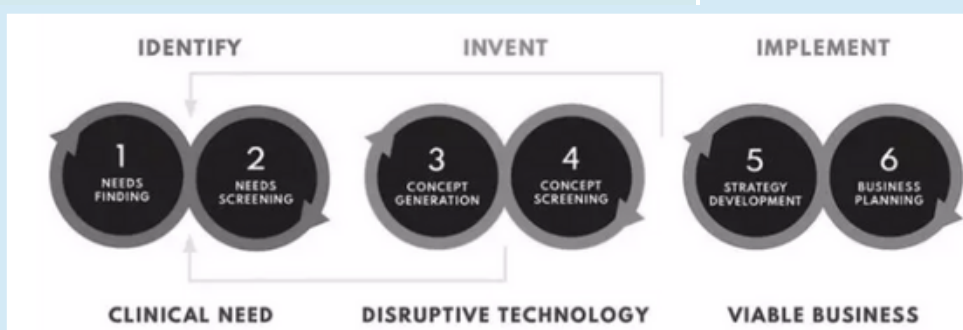
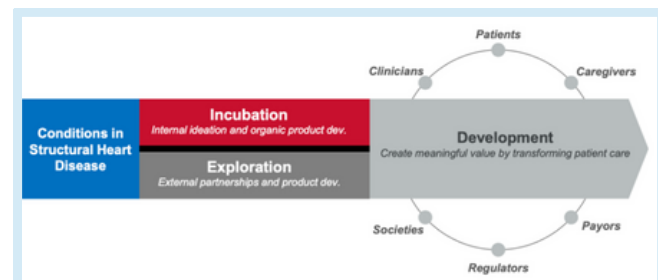
# ENGINEERING DESIGN PROCESS

The process to making innovative medical health care

Edwards Lifesciences completes the engineering design process by creating teams. The teams include Manufacturing, Quality Engineering, R&D Engineering, Sales and Marketing, and Clinical Affairs. My best friend’s dad is an R&D engineer at Edwards. He was always my role model. I would often ask him about the engineering design process. His response was always, “**Trial and error**, then document it.” That one sentence could mean so many things. When I slowly dived deeper, there was valuable meaning behind it.



Project Development Process (source: Alliance Social)



## 393Z ROBOTICS TEAM

### GRASS TOUCHERS



Our team 393Z is from Legacy Magnet Academy a business school that allows us to excel through RISE and TIDE. RISE stands for Reflect, Ideate, Support, and Engage. TIDE stands for Technology, Innovation, Design, and Entrepreneurship. What makes our team unique is we incorporate both RISE and TIDE into our overall innovative performance inspired by Edwards.



# ENGINEERING DESIGN PROCESS

## 1. Defining the Problem & Brainstorm

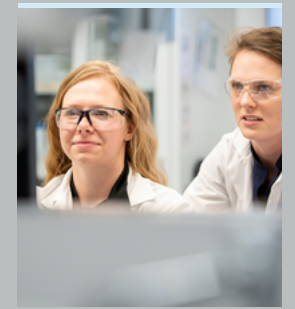
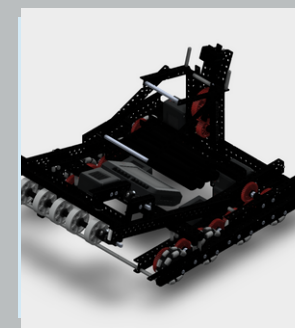
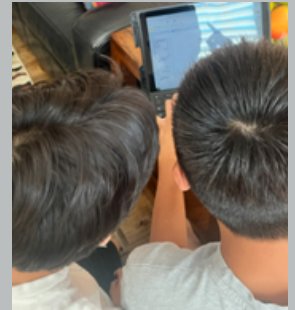
First, Edward's quality engineers take a needs-driven approach. Utilizing the research gathered from clinical affairs, they assess the data which allows them to analyze how they can improve healthcare. To ensure the solution is reliable, criteria and constraints are defined.

On our robotics team, to begin the process of defining the problem, we started by watching and reading the Over-Under-game manual and video. Looking at both of these aspects, we gained an analysis of the game. With these two resources, we proceeded to create a table for criteria and constraints. We utilized this knowledge to create individual brainstorms. Our brainstorms demonstrated different solutions for the possible design of our bot. Similar to how Edward Lifesciences encourages consistent brainstorming, we try to generate as many ideas as possible.

## 2. Developing Ideas and Choose Best Idea

The ideas that are generated from the brainstorming stage lead to the formation of the final proposal. Different departments in the company revise the solution. These departments check all aspects including the development plan stages, design, and innovation. Reviews are conducted at each step for no mistakes.

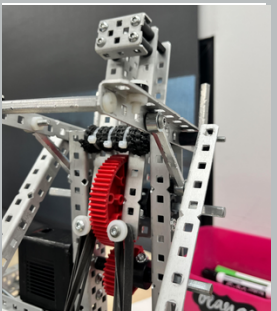
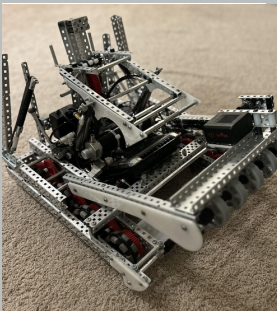
Similar to Edwards, we chose the best idea by making a decision matrix. Through the research we've collected from numerous sources, we put the subsystems into the matrix. Then, we rated the subsystem on a scale of 1-10 with categories to ensure that it fits our standards for excellence. Categories include stability, efficiency, etc. Like how Edwards reviews different aspects of their proposal, we inspect the design of our robot.





# ENGINEERING DESIGN PROCESS

Edwards Lifesciences employees & 393Z at work in stages of the development process



### 3. Build

After the design is finalized, manufacturing engineers build the product. They ensure that the products are of high quality. Afterward, the Corporate Quality in cooperation with the Research and Development team tests the product. There are multiple stages of testing so that the product doesn't malfunction. Following the success of testing, these teams verify that it's ready.

When our design is completed, we also begin to build. An innovative aspect of our team is that we always cad our designs. Cadding a robot isn't common in middle school teams as it is a difficult process. Nevertheless, we believe it is crucial because it allows us to know how we want the outcome of our design to look. Throughout the building process, we are always making changes. An example of this is that we've gone through numerous iterations of our shooting mechanism.

### 4. Communicate Results

Edwards Lifesciences utilizes its Sales & Marketing department to network in the market. Networking could mean spreading awareness, building relationships, and forming strategies. Our version of a Sales & Marketing department is by participating in VEX Competitions. During competitions, we often scout teams. Scouting provides us the opportunity to form offensive and defensive strategies with our possible alliance or opponent.

# BENEFITS OF VEX

A LEGACY FOR THE FUTURE



## GROWTH MINDSET

Being part of VEX Robotics has taught me to have a growth mindset. In a robotics team, one encounters persistent obstacles. I've learned that my mindset underscores the importance of success. Giving up is never a solution if one wants to reach their desired outcome. Throughout life, we'll always consider giving up, but VEX encourages me to persevere.

## COLLABORATION

Robotics has allowed me to form true friendships, not just with my team, but with other peers too. I've been able to work with a variety of peers and overcome conflicts with them together. Valuing others and treating them with proper respect is essential for collaboration. No matter the circumstance, one will always have to socialize which I can do with the communication skills I've gained.

## FAILURE

Why failure? Losing States last year with high hopes was traumatic. I felt like all my hard work was wasted, just because I simply didn't win an award qualifying for the Worlds Championship. Now, when I reflect on that season, I don't see failure anymore. I see a season of cultivated learning and memories created. In the end, life isn't like a princess story I always hoped it would be. I realized that my best friend's dad meant that **life is trial and error**. My failures are my foundation, the root for my success to come in the future. My failures have molded me into who I am today, into the **beginning of my future legacy**.

# SOURCES

<https://edwards.com/sustainability/products/product-design-and-innovation/>

<https://engineering.uci.edu/news/2023/11/edwards-lifesciences-foundation-supports-new-program-focused-equitable-innovations>

<https://alliancesocal.org/news/2023/04/20/delving-into-biodesign-aka-human-centered-design-at-edwards-lifesciences/>

[https://www.researchgate.net/figure/The-modified-Edwards-Lifesciences-Cribier-sapient-is-shown-with-the-composite\\_fig4\\_26332876a](https://www.researchgate.net/figure/The-modified-Edwards-Lifesciences-Cribier-sapient-is-shown-with-the-composite_fig4_26332876a)

<https://www.edwards.com/careers>

<https://www.edwards.com/careers/professional-areas/quality-engineering>

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