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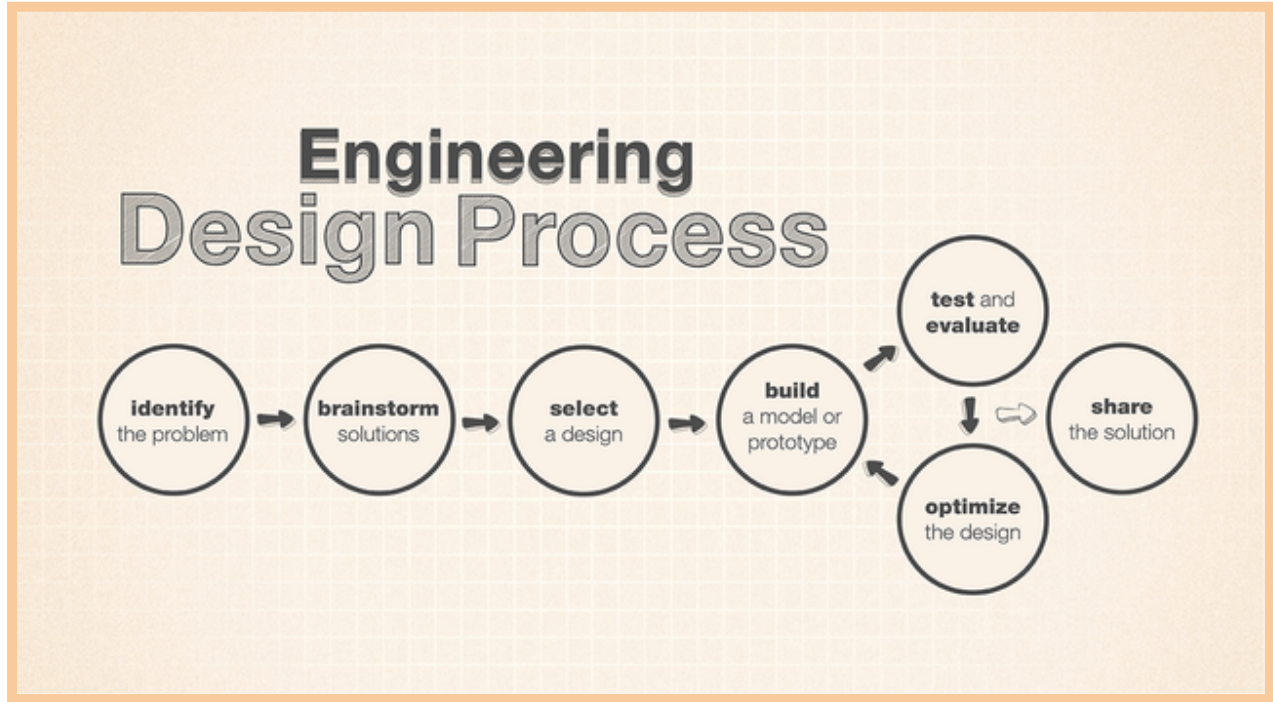
Career Readiness Challenge 2023

“As the world continues to become more technical, an increasing number of professions rely on some version of the engineering design process to identify and solve problems”. In this submission we will show a combination of text and images to identify a specific career or company and explore how its professionals apply and document the steps of a design process in the tasks of their job.

For this submission I am choosing to research the STEM career path Genetic Research (Advancements, Using to Heal/Improve Lives) because later I plan to study biomedical science. I will be going into the medical field later on, in my career path. The STEM career path Genetic Research is also known as the path Genetic Scientists tend to take, they are formally called Geneticists or Genetic Engineers.

What are Genetic Engineers? Genetic Engineers are scientists that work in the field of Genetic Research. Genetic Engineers found that the properties of cells that make up and are a part of them can be manipulated, changed, and transformed through genetic research. Things that are composed of cells include: seeds, bacteria, insects, plants, animals, and even people. Scientists have found ways or solutions to complex and life-threatening diseases like heart disease, asthma, diabetes, and cancer thanks to genetic engineering research and the technology it has produced. Genetic Engineers have found these solutions by using the engineering design

process. The engineering design process is a series of steps to come up with a solution to a problem.



Source of image used: <https://encrypted-tbn0.gstatic.com/images?q=tbn:ANd9GcSB4om2dFxlWEvAZaGdUDfwlgN6vHik6742zmExl0KDvmsasc&e>

1st Step	2nd Step	3rd step	4th step
Define the Problem - In order for engineers to find a solution to diseases like asthma, heart disease and diabetes, they must identify the problem or diagnose the issue or disease.	Do Background - Research - After diagnosing the disease, engineers must research their diagnosis in order to understand what it is, or what causes it.	Specify Requirements - For this specific step you find out a way to cure the disease and a clearer idea. You also have practice run throughs of doing surgeries.	Brainstorming ideas- There are many ways to solve problems. If you stay focused for long enough on one problem before looking at other options it is almost certain that you are looking

			<p>for a better solution. Genetic Engineers try to create as many solutions as possible. We use this in VEX.IQ to help create a good and functional robot to solve problems.</p>
<p>5th Step: Choose the Best Solution</p> <p>Usually in the bio - medical field there are different ways to perform one operation or a treatment. So you need to find the best solution or treatment that is best, like finding affordable, painless and low risk treatments. Like in VEX.IQ. We had 12 to 14 models before we found the perfect one, that works in all situations and also will</p>	<p>6th Step: Develop the Solution</p> <p>In this step you start making the solution plans and adding on to the operation or treatment and making it better before building. You create a solution plan, which solves your requirements and the time. Just like with our robot plan, every time something or another was wrong we would come up with a solution to fix it. This</p>	<p>7th Step: Build a Prototype</p> <p>For this step you start using resources and turning your idea into a real functioning medical treatment. This is where you take an idea and build it and then find out what's wrong. Like in medicine there are many steps to finding which treatment is the best. Prototypes for medical treatments are not the final product, this</p>	<p>8th Step: Communicate Results - you would want to complete your project you would have to communicate your results with other people in a professional way on a design board. Professional engineers do the same and document their solutions so they can be supported and manufactured. We do this in VEX.IQ by creating sketches of the robot and then making those sketches real.</p>

<p>help us during the competition.</p>	<p>is more of an idea than an actual prototype.</p>	<p>is part of the process before fully completing whatever you are working on. There is always room to improve</p>	
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The engineering design process is not just used for a STEM-based career path like Genetic Engineers, but for everything in life. Such as in VEX IQ, we learned a lot of new concepts for our robot. We had to use all of these steps and go through the engineering design cycle over and over again. We would fail and have to go through many prototypes. Our prototypes had problems like they couldn't shoot, or many they couldn't dispense with. We had to come up with more and more ideas to make it be able to do everything. In our Engineering and Design notebook we always draw sketches of what our ideas are and plan on how to execute them. Our team especially knows how much the engineering design process helps. We have suffered many losses and we always come back because of this process. It tells us what to do and how to do it, it gives us an idea of a good way to go. It's not just robotics, there are so many jobs that use the engineering design process, some people use it without even knowing! Even when you think you're done, there is always room for improvement and the design process helps us execute that.

Citation Credits:

Sources: "Playing with Genes: The Good, the Bad and the Ugly." FRONTIER TECHNOLOGY

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