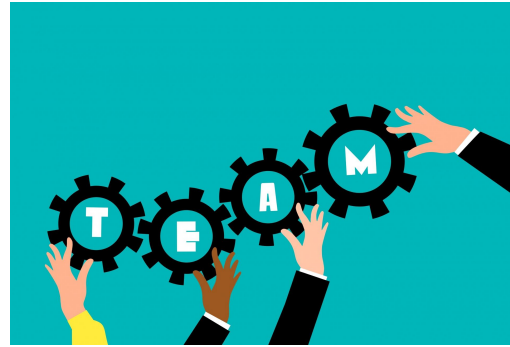


Vex Career Readiness Challenge- Team 7983Z Entry

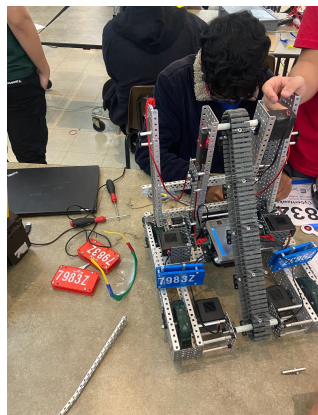
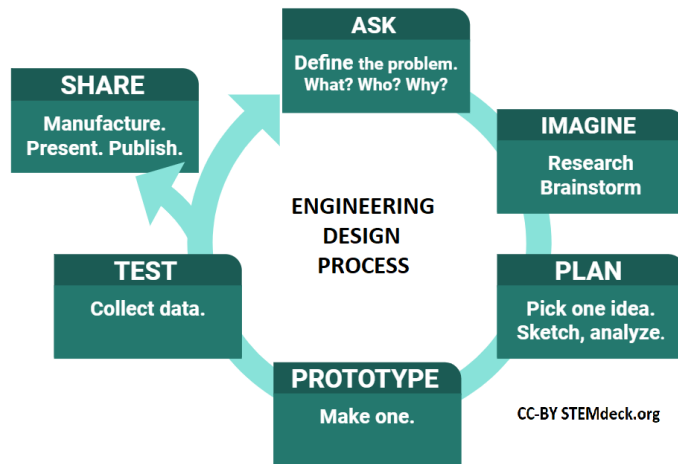
We chose this career because of its a relatively popular field of engineering with many advancements being made by various companies and famous personas within popular culture. These mainly consist of the field partially moving to domestication of the space sector of aerospace engineering made by Elon Musk with SpaceX, Richard Branson with Virgin Galactic, Jeff Bezos with Blue Origin, and several others. This incites our direct interest due to that being a majority of the media we see involving engineering while also having the support of famous characters that several within the more recent generations look up to. This also coincides with stories that we hear from our parents or grandparents about the moon landings and NASA's activity during the space race which we've been told since we were kids and made us see the NASA engineers as the great sages that helped the heroes of the astronauts complete their journey to greatness.



The aerospace industry is relatively new in terms of engineering altogether, and encompasses the engineering of products in the aeronautical and space industries. Aerospace engineers are required to work in a team environment to provide solutions for given problems. This often includes researching solutions and methods for the problem, as well as designing and testing their solution.



We found the general design process from articles and reference materials from reliable sources. The design process for aerospace engineers can be simplified into a few main steps: finding the problem, conceptual design, preliminary design, detail design, testing, and review. In the first step the team defines the problem they are tackling such as a new demand or a deficiency found in the market. Here they decide the requirements for the solution and aim to be realistic with it. In the second step they brainstorm ideas and designs for the solution. This step may be repeated many times throughout the entire process to create a better solution. In the third step they start solidifying the ideas and use calculations to create a more finalized product. The fourth step is to design and test every part of the final solution. This process is usually long and complex, but is essential to ensuring a working and safe final solution. In the fifth step the team starts to test their solution in full, for example they may create a prototype plane and fly it. This is done to ensure that the solution works and to find any flaws. Finally in the sixth step they review their solution and make any final tweaks to it.



The design process used in our team for VEX is somewhat similar to their design process. One of the main differences is our ability to repeatedly change and test the final product rather than having to do many calculations and designs. This is because our parts are all standardized and we are able to easily take apart the robot and rebuild it as needed. However all of the other steps are the same except for the detailed design. This is because this design process most efficiently

leads a team to a solution without the need for excessive testing wasting time.

This general design process along with the team skills needed in VEX robotics has given our team's individuals indispensable tools to help them in their future. Many of us are planning to go down the engineering route and the hands-on experience of the design process and teamwork has given us valuable knowledge that will shape future interactions with problem solving. Even for those who do not plan on focusing on engineering in the future, the team skills and problem solving skills developed through this program are general enough to be helpful with many problems.

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