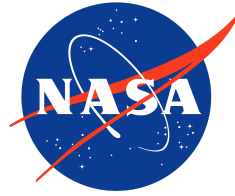


Career Readiness challenge

AEROSPACE ENGINEERING



&

VEX ROBOTICS

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TABLE OF CONTENTS

1 - AEROSPACE

- 2 - ENGINEERING DESIGN PROCESS (EDP)
- 3 - ENGINEERING DESIGN PROCESS CONTINUED
- 4 - EDP APPLIED TO AEROSPACE AND ROBOTICS
- 5 - SIMILARITIES AND DIFFERENCES
- 6 - AEROSPACE DESIGNS AND EXAMPLES
- 7 - CONCLUSION

Introduction to Aerospace Engineering

Aerospace Engineering is the field concerned with designing, maintaining, constructing, testing and developing aircrafts, spacecrafts, and

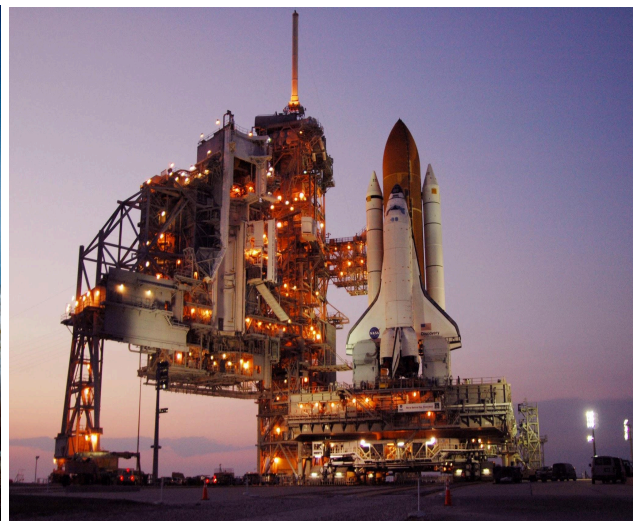
more systems. Aerospace engineers also work on the mechanisms and systems that support these space vehicles. They do a lot of research and work.

Aerospace and VEX Robotics

In both of these amazing fields, we design and build things to accomplish a goal or task.

Aerospace Engineering Facts

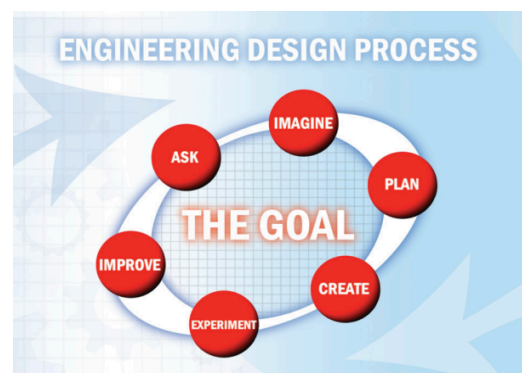
- ★ The term 'Aerospace Engineering' first appeared in the 1950s
- ★ Aerospace Engineers must have a Bachelor's Degree
- ★ The two major and overlapping branches of aerospace engineering are aeronautical engineering and astronautical engineering
- ★ Aerospace Professions are super high demand



Aerospace Engineers Following the Engineering Design Process

Aerospace Engineers...

- Question about the goal.
- Imagine a solution
- Plan a design and draw your ideas



- Create and construct a working model
- Experiment and test the model
- Improve and revise the model

Aerospace Specific Engineering Design Process

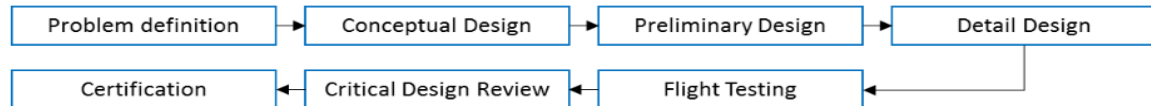


Photo from engineeringclicks.com

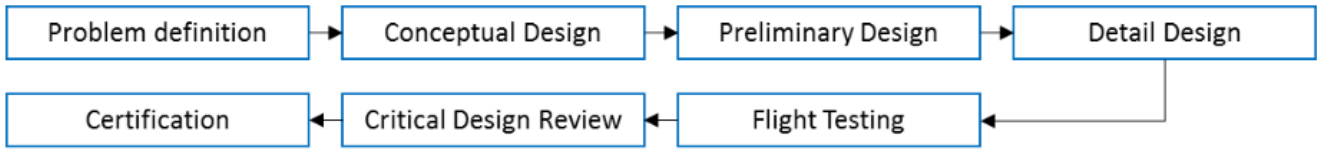
The Aerospace Engineering Design Process is time-taking. Since building an aircraft is so expensive, they have to make sure there are no flaws and that everything is perfect.

Steps of the Aerospace Engineering Design Process

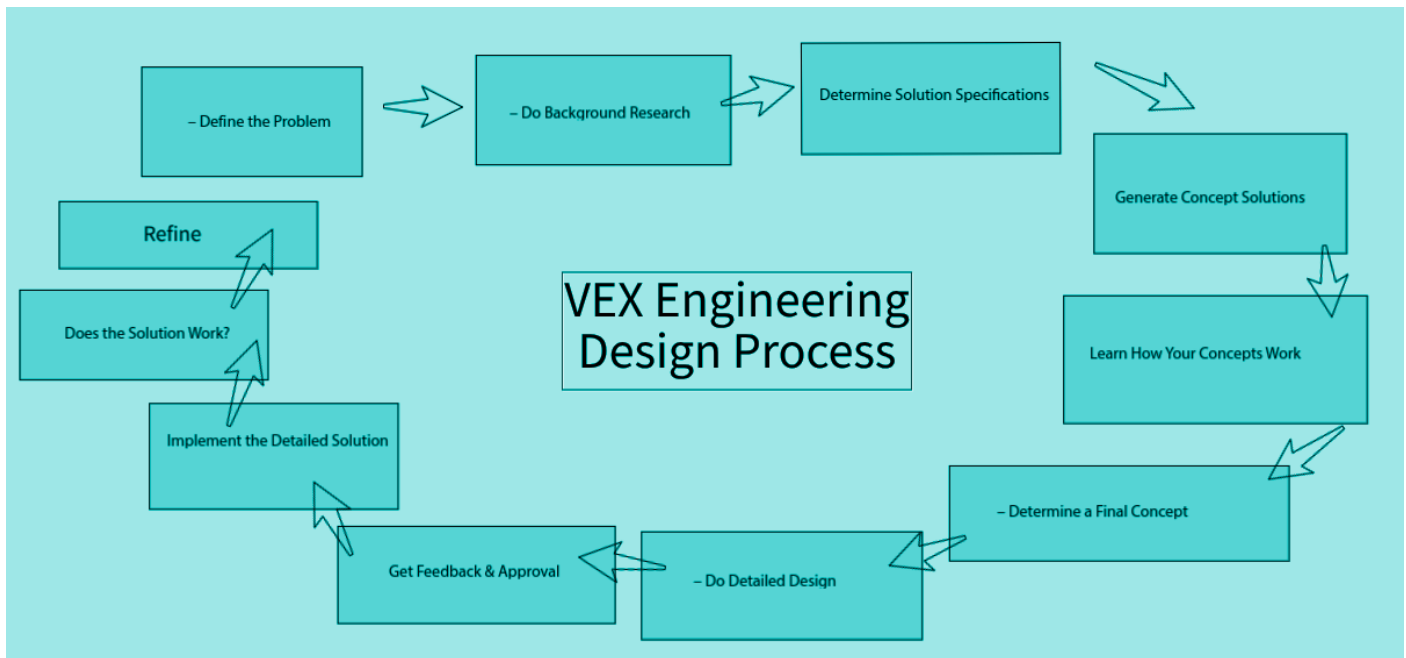
1. Problem Definition - identifying the problem and coming up with a possible solution
2. Conceptual Design - the brainstorming stage

3. Preliminary Design - calculate requirements such as aerodynamics and flight mechanics
4. Detail Design - each component is designed and tested
5. Flight Testing - a prototype is built and tested
6. Critical Design Review - design is reviewed and small adjustments are made
7. Certification - aircraft is certified

Aerospace Engineering Design Process



VEX Robotics Engineering Design Process



Handmade by Pavithra Suresh

Similarities & Differences

Similarities	Differences
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In both robotics and aerospace engineering, people use the engineering design process.	In robotics we design, build, and maintain robotic systems to perform tasks.. In aerospace engineering, engineers design, create, oversee and test their creation.
Both have a lot of challenges that you must solve.	In VEX robotics, you can test and evaluate the robot but in aerospace, you can't completely test if the rocket works because once it goes to space, it's not coming back. You can't test the mechanisms to see if they work like you can in robotics.
Both are high in demand.	Spacecrafts and aircrafts use fuel while in VEX robotics, we use a battery.

Aerospace Designs and Examples

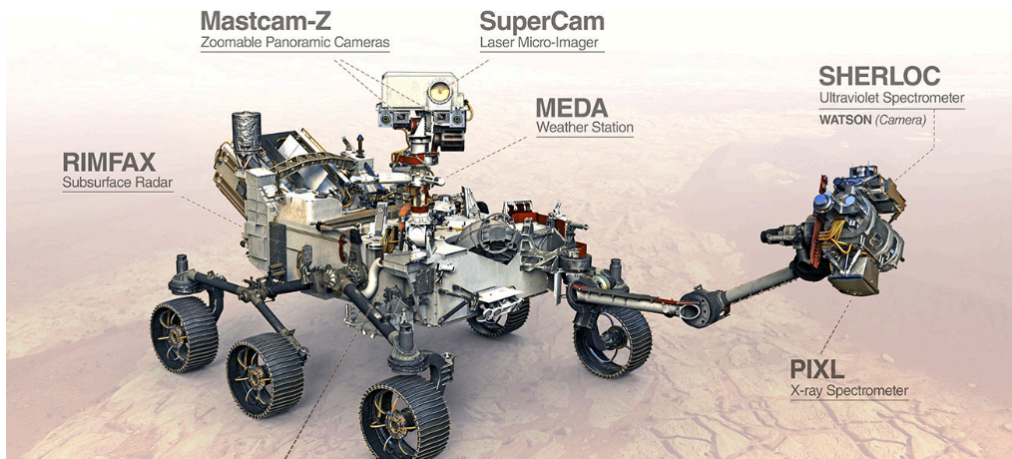
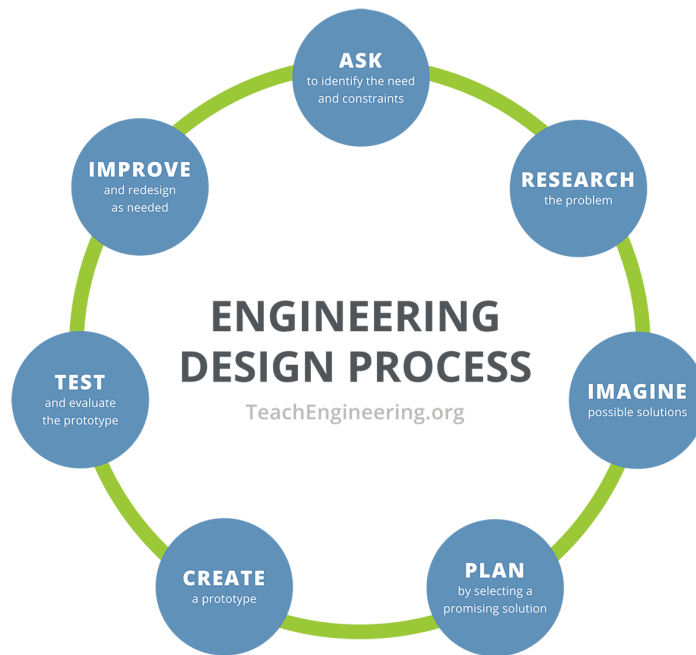


Photo from mars.nasa.gov



Photo from nasa.gov

The picture above is Nasa's Perseverance rover. The task of this rover was to search for signs of life and collect rock samples to bring back to Earth. Click [HERE](#) to learn more about Perseverance.



Overall, aerospace engineering and VEX robotics have a lot of similarities and differences. We chose this career because both VEX robotics and aerospace engineering involve designing, building, and testing and because aerospace engineering is super cool. Thank you for reading. We hope you enjoyed our document!

